



November 2000

Volume 68 No 11

Amateur Radio

YL 2000 Hamilton NZ

Special
Ionospheric Update:
Solar Cycle 23



Women in Amateur Radio

The First Australian Call Sign from Space

- ✱ The Feld-Hellschreiber
a home-built, direct printing
telegraph system
- ✱ A HF to LF Transmit
Frequency Converter
- ✱ Noise Cancelling at HF
and VHF

Gil Sones VK3AUI

Technical Abstracts:

*Low Band
Receiving Antennas
Diode Probe
Commercial RF
Probe*



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Amateur Radio

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Our cover this month

YL 2000, Hamilton NZ — see story page 26

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted, at \$4.00 each (including postage within Australia) to members.

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Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radio communication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The World's first and oldest
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Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

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Editor's Comment

Colwyn Low VK5UE

What is Amateur Radio ?

I suppose AR is all things to all people. We each have our own interests and we each practise part of the possible range of Amateur activities.

In the beginning I suppose all Amateurs were experimenters of some sort. Just getting on air or listening meant you built your own equipment. As time passed you could buy your equipment and there were as many "fights" over who were the real amateurs, like we have had recently based on Morse Code testing for Amateur Licences.

At this time Amateur ranks gained people whose primary goal was to keep in contact with a few friends and who were technically aware enough to get an Amateur licence, get on the air and communicate. A number of Amateurs continued to experiment.

More recently other means of communication became readily available to the public with computers and the Internet and with mobile phones. This means a lot of people now never even think about becoming Amateurs.

So what is Amateur Radio ? Why should it have access to MHzs of precious spectrum ? Why should one group of people continue to have free chat time ? Does the community appreciate what we Amateurs do in providing backup communications and sometimes primary communications in time of natural disaster or horrific accidents ? Do we need to prepare for these emergencies by just using radio equipment so that we understand its limitations and capabilities ? Do we have to provide first class communications to the organisers of canoe races or bicycle races, or car rallies or orienteering competitions or fun runs or ???

Well then what is it that makes you an Amateur ? Drop me a short letter on why you are an Amateur and maybe we can sort out what we could do to encourage more people to become Amateurs.

By the way I have at last started to build the boards for my 1.2GHz transverter. The oscillator board is complete.

73 Colwyn VK5UE

New WIA Members

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of SEPTEMBER 2000

L21181	MR M PATTERSON	VK3JJJ	MR C HARRIS
L30978	MR J MALONE	VK3TE	MR P BRENNAN
VK1DBO	MR J R HOULDER	VK3TZH	MR R GREENBANK
VK1KBN	MR D T TSIFAKIS	VK3WX	MRS R GLADWIN
VK2KZW	MR H ONODA	VK3YUN	MR C BULL
VK2RS	MR D HABERECHT	VK5ZMB	MR C B CLELAND
VK3CEA	MR K MORGAN	VK6BEG	MR T NISHIURA
VK3DBF	MR A SCHELLAARS	VK7HSC	MS S J HARDSTAFF
VK3GIL	MR G MCDAVID	VK7KDR	MR J H WEBSTER

Peter Naish
WIA Federal President.

This month I am concentrating on some important activities taking place in the international arena and the part being played by the IARU.

This year an ITU World Radiocommunication Conference was held in Istanbul (WRC-2000). The most important outcome from this meeting as far as Amateur Radio is concerned was an agenda-setting process for the next WRC expected to be held in 2003. The agenda for WRC-2003 has now been determined and includes a number of significant matters affecting radio amateurs. These include a review of the ITU articles that define amateur radio and the qualifications needed to obtain an amateur radio licence. Additionally, there is to be consideration of a realignment of the 7 MHz band with the target of a harmonised band worldwide allocation, hopefully 300 kHz wide. Also, in the HF spectrum, there is a strong push being made by commercial HF broadcasters for digital modulation techniques. Some review of HF

broadcasting in 4 to 10 MHz area is also likely. In the UHF and microwave areas of the spectrum, WRC-2003 will consider the use of earth exploration satellites and land mobile systems in the 400-500 MHz band, an international allocation for disaster and emergency communications, the expanding use of so called Little LEO's (low earth orbiting satellites) as well as a number of other matters concerning communications satellites using microwave frequencies.

WRC-2003 will be one of the most important conferences of recent times with the potential to shape the future of the amateur radio service for many years to come. Therefore, the IARU will be spending the next few years concentrating on its preparations to meet the expected challenges. To this end a core team of IARU personnel is already in place, lead by the IARU President,

Larry Price W4RA. This team will make WRC-2003 its major focus and they will be augmented as required to ensure that amateur radio's objectives are heard and supported by the ITU delegates from every country participating in the conference. Unless the groundwork is done well and early, the voice of amateur radio could easily be drowned out by the increasing number of large and wealthy commercial interests.

The WIA is an active participant in IARU through its membership of IARU Region 3 and it will continue to press for the needs of the Australian radio amateur. The contribution that you make to IARU through your membership of WIA is a vital element of the work to be performed to ensure a satisfactory outcome from WRC-2003.

Peter Naish
WIA Federal President.

News Snippets

DARWIN - IARU CONFERENCE - Promoting Amateur radio

At the 11th IARU Region 3 Conference held in Darwin in August 2000 a Workshop was held to consider the promotion of Amateur Radio.

A PowerPoint display about promoting Amateur Radio was used. This uses about 14 slides. The file is designed to support a live speaker but no speech notes are provided, however you CAN customise the file for display to groups of radio amateurs. Add new slides, delete slides, alter the wording and add new graphics, as you require.

You must have PowerPoint 97 or later, or the free viewer to run these files. So download them - and enjoy the display!

Just email iaru-r3@jarl.or.jp and get the download instructions. (The ppt file is 115 kb)

CALLBOOK 2001

We see Federal office has notified the VK7 division that the 2001 Australian Radio Amateur callbook WILL be ready for distribution at the end of November this year.

It will contain the listings for just on 16000 amateur stations, plus reference data, accredited examiners list, band plans, repeater and beacon list, and DXCC country listing.

This is a Wireless Institute publication and another important service to members and amateur radio. Invaluable in and around the station.

INTERNATIONAL

IARU - Administrative Council Meets

The next scheduled meeting of the Council will be held in Guatemala on 6-

8 October 2001, immediately after the Conference of IARU Region 2. IARU President is Larry Price, W4RA and Vice President our own David Wardlaw, VK3ADW. Local region 3 representatives include Fred Johnson, ZL2AMJ, Yoshiji Sekido, JJ1OEY and Peter Naish, VK2BPN.

EUROPE

The European Radiocommunications Committee at its meeting in Lisbon 16-20 October adopted 18 new draft ERC Decisions for public consultation. The draft ERC Decisions deal with harmonised frequencies, technical characteristics and exemption from individual licensing of Short Range Devices. The draft ERC Decisions may be downloaded from the ERO web site <http://www.ero.dk/eroweb/consult.htm>

af

Thanks to Q-News

The Feld-Hellschreiber

A home - built, direct printing telegraph system

by
Dale Hughes, VK2DSH

Amateur radio operators have access to many transmission modes. A mode that has generated much interest in the last few years is called Hellschreiber. It allows the user to send text in real time using on-off keying of the transmitter. A recent activity day attracted an estimated 200 operators from all around the world.

Free software is available to send and receive Hellschreiber signals using an ordinary PC equipped with a sound card. This is the method most people use as it is easy to set up and operate. Another option is to build, or otherwise acquire, an electromechanical machine based on the original design. This article describes one possible approach to building such a machine.

It is not intended to give a detailed and complete description of the machine, but is presented as a collection of ideas about how such a machine may be constructed from 'junk box' components. No mechanical drawings are presented, however it is hoped that the photographs and description that follow, along with the cited references, will be sufficient for interested readers to build their own machine.

Some History

Rudolf Hell first developed the original Hellschreiber telegraph system in Germany in 1929. Many pre and post war news services transmitted their bulletins over Hellschreiber circuits, both radio and landline. During World War 2, the German armed forces used

Hellschreiber machines extensively. Initial amateur Hellschreiber activity was based on WW2 surplus machines. The system remained in active use until the early 1960's, after which it was supplanted by more conventional teletype systems which offered superior performance - albeit with extra complexity. See reference (1) for an interesting and detailed historical survey.

The Hellschreiber messages are not encoded in the same sense as conventional teletype messages, rather each character is sent as a 'bit map' in a 14 by 7 matrix of pixels. As no encoding is done, noise or distortion introduced during transmission cannot change the code from one character to another. The user relies on his or her eyes and brain to sort out the signal from the noise. Such a system is described as 'fuzzy' (1) as it is a mixture of digital and analog processing.

As can be seen from the following example, not all pixels are used. At least two pixels on all four sides of the character are left white to maintain readability, except for characters Q, 3, 5, 6, 7, 9 & ? where the characters extend

into the normally white region. Otherwise, each pixel in the matrix can have two states - either black or white - that is, printed or not printed.

The characters are transmitted as a sequence of columns starting at the bottom left hand corner of the above example and working up each column to the right, one column at a time. Note however that single pixels are never transmitted: only groups of two or more are sent. This is done so that the transmitted bandwidth is minimised. Since at least two pixels are always transmitted, the minimum pulse width is 8.16mS, so the maximum Baud rate is $1 / 8.16\text{mS} = 122.5$

In the original system, reception was accomplished by using a two turn helix rotating at 1050 RPM past a paper tape. The helix was coated with a film of ink applied by an ink pad. A magnet pressed the paper onto the rotating helix every 'mark' pixel. Thus each character was made up of a sequence of lines. There are two main advantages of this system:

- Its simplicity.
- It performs well in the presence of noise as the eye is very good at (visually) recognizing characters amongst the background of dots caused by any noise pulse.

An important fact to note is that the system does not rely on start or stop bits or special codes to ensure synchronism as in conventional teletype systems. All that is required is that the transmitting and receiving machines are running at approximately the same speed. Of course it is best that the machines at either end of the circuit run as close as possible to the same speed. The effect of speed differences is to make the received text slope one way or the other, it does not cause corruption of the received characters.

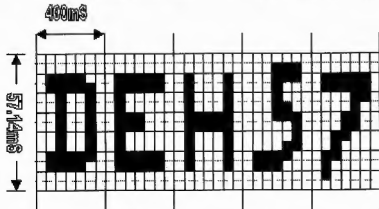


Figure 1: Example character fonts.



Figure 2: Examples of text printed by the machine, showing double and normal width characters.

As can be seen on the above examples, the text is printed at least twice so that a full line of characters are always visible. This is a function of the receiver alone because the receiver helix has two turns.

The following pages describe the machine that I built based on information found in the various sources cited at the end of this article. In particular I refer people to the excellent web site of Murray Greenman ZP1BPU (ref 1) for historical information as well as links to other sites where software and other data is available.

- the helix drive motor is from a DEC LA120 printer,
- the paper tape feed motor is from a 5.25 inch floppy disc drive,
- the printer magnet is a 3000 type telephone relay,
- an encoded ASCII keyboard from a junked terminal,
- paper tape reel from a junked paper tape punch,
- various other components for the modem and power supply,
- a 65C02 based single board computer system.

The machine consists of three main parts:

- (a) The transmitter, which uses a 65C02 microprocessor board to generate the transmitted codes from a stored bit map, reads the keyboard and writes to the display.
- (b) The receiver based on a rotating helix and magnet system. The messages are printed onto teletype paper tape.
- (c) A modem for radio transmission and reception of the Hellschreiber signals.

The technical details of these systems follow:

The transmitter subsystem.

A 65C02 based single board computer allows the operator to perform the following tasks:

- (1) Enter text into memory for later transmission,

- (2) Transmit memory contents,
- (3) Transmit keyboard characters 'live', i.e. as they are typed,
- (4) Display contents of the text memory,
- (5) Synchronize the CPU to the mechanical operation of the helix @ 17.5Hz
- (6) Generate a continuous 980Hz tone to tune the transmitter,
- (7) Send automatic CQ sequence,
- (8) Display help screens.

The critical parts of the software are interrupt driven, as this ensures that the timing of the transmitted pulses is always correct. In the 'live' transmission mode a type ahead buffer is implemented.

All timing and tone generation is done using the inbuilt hardware timers of a pair of 65C22 chips. These are driven from a 2MHz crystal, so the accuracy and stability of the timing and transmitted tone is high.

The keyboard is an encoded keyboard with a parallel output. This is read via a parallel port of one of the 65C22 chips. Each key press raises an interrupt, and the character is then read into a buffer. Characters are displayed on a 16 character by 2 line liquid crystal display, which is driven by a parallel port from a 65C22. The keyboard is from a junked TTY machine and is over 20 years old!

Characters to be transmitted are generated as a sequence of logic levels which are then gated with a 980Hz tone. The gated tone is then passed through a filter to produce a suitable sine wave for transmission. See the following modulator circuit for details (Figure 4).

Source code and a printed circuit board layout for the above microprocessor system can be supplied to interested readers

The receiver subsystem.

The demodulated tones are amplified and filtered to drive a FET which controls the printer magnet. The printer magnet is a modified 3000 type telephone relay. I was initially doubtful whether the magnet would respond fast enough, but it seems to work just fine. However, it takes approximately 1 amp to operate. Each 'mark' signal causes the paper tape to be pushed against the rotating helix. The helix has a film of ink applied to it from a piece of sponge rubber soaked with ink. Ink is



Figure 3: Home-built Hellschreiber machine.

This machine was built from mostly 'junk box' parts. The parts I had determined the end result, so I will only describe the system in general terms (the construction of an identical machine would be most unlikely). For instance, the following parts were on hand:

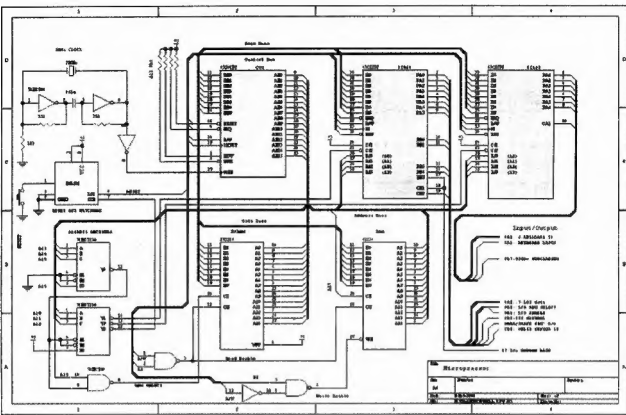


Figure 4: CPU Circuit

transferred to the paper tape when contact is made with the helix. The paper tape is advanced for every rotation of the helix, and a photon-coupled interrupter synchronizes the stepper motor so that it does not advance while the line is being written. The paper advance can operate continuously or only when characters are being received. Adjustment of the tension on the paper tape is possible, so that the paper advances consistently. A stepper motor, formerly used to move the heads of 5.25 inch floppy disk drive, actuates the paper advance. The stepper motor is driven by a simple circuit from the 'Silicon Chip' magazine of June 1997 (ref 4). Pulse rate and duration is adjustable to give the best paper advance operation.

The spool of paper tape is held on a wheel originally from teleprinter tape punch. Paper passes from the spool to the printer mechanism through a channel just wide enough for the tape, designed to keep the tape correctly aligned with the printer helix.

To ensure that the receiver helix runs at the correct speed of 1050 RPM, a speed control system based on an

LM2917 speed control IC is used. The motor I used had an existing shaft encoder at one end, so it was a simple matter to provide a closed loop feedback control. This works very well, and holds the shaft speed to 1050 RPM as required.

The printer helix is a small cylinder

of brass, about 25mm in diameter, wound with two turns of 22 gauge steel wire. Dimensions of the helix are not critical, except that its length should be slightly less than the width of the paper tape. Ideally, the wire should be secured in such a way that it does not move.

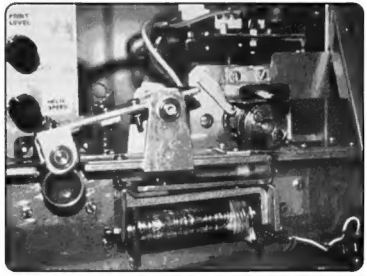


Figure 5: Close up photograph of the printer mechanism showing the printer helix, printer magnet and paper tape advance mechanism.

The modem

The gated tones generated by the transmitter are passed through a low pass filter then a band pass filter with a Q of 5. The rising and falling edges of the tones are nicely rounded by the filters to minimize transmitted band width. The tone bursts are then amplified by a pair of op-amps forming a push-pull amplifier driving a 600Ω/600Ω transformer. This balanced output

then drives the transmitter microphone input through an attenuator so that the transmitter is not overdriven. The attenuator and transceiver interface are located in a separate module. Received tones from the receiver output are coupled to the modem via an input transformer with a selectable input impedance. The tone bursts are amplified and then passed through a two stage band pass filter. Each section of the filter has a Q of 5 and a centre frequency

of 980Hz. A full wave rectifier, low pass filter and Schmidt trigger produce a voltage to drives the printer magnet. Printer magnet drive can be either from the modem output or from the local keyboard.

No pin numbers or op-amp types are shown on the schematic diagrams as they depend on what parts are used. The unit I built used TL084 devices, but the selection is not critical.

Conclusion

I have found the Hellschreiber mode works very well and have enjoyed a number of QSO's. It was a lot of fun to build the machine and to get it to work, and it is very satisfying to use. As I was able to use components from my 'junk box', the cost of constructing the machine was only about AU\$50, \$10 of which was for a can of suitable spray paint for the front panel!

Two main improvements to the machine could be made:

(a) Use a machined helix instead of the wire and cylinder, this would ensure consistent character height. In the current arrangement, the wire shifts slightly when the printer magnet is actuated, sometimes causing distortion of the printed characters.

(b) The 'live keyboard' mode does not allow editing of typed characters even though they have queued in the transmit buffer. Thus any spelling errors are transmitted....

I hope the ideas presented above will encourage others to have a go at building their own systems or at least use the mode.

Reference Material:

I found the following reference material very useful as a source of ideas and information:

- (1) <http://www.qsl.net/z1bpu/FUZZY/Contents.html>
- (2) Radio Communication, April 1981, Cook, G5XB
- (3) Ham Radio, December 1979, Evers, PA0CX
- (4) Silicon Chip, June 1997

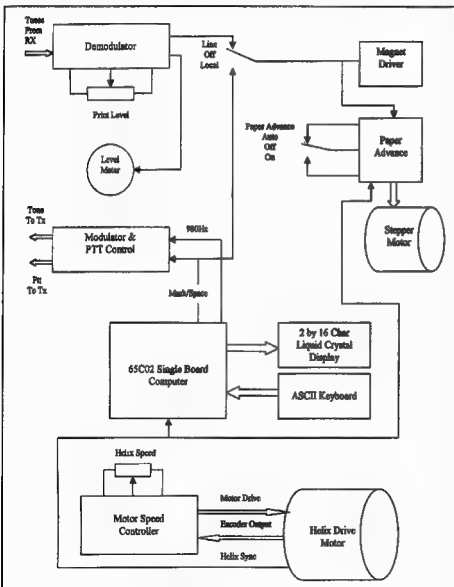


Figure 9: System block diagram.

A HF to LF Transmit Frequency Converter

Lloyd Butler VK5BR

Any mode (e.g. CW, AM, SSB, FSK) which is initiated in the HF transmitter or transceiver can be regenerated at LF (100 to 200 kHz) using this simple converter. The output at LF can be used to drive an LF Power Amplifier.

The February, 2000 issue of *Amateur Radio* (ref. 1) contained an article I had submitted on an LF transmitter. The transmitter was designed for CW operation but the power amplifier was operated in a linear mode and it was only a matter of replacing the VFO with some form of AM or sideband generator with an LF output to operate on speech.

The article was followed up with a further article (*Amateur Radio* September 2000 ref 2) on a Single Sideband Generator using the phasing technique. The design aimed at making a stand-alone unit because of the possibility of using the unit at a site away from the amateur station. However it was pointed out that a simpler arrangement might be achieved at the amateur station site by heterodyning down from the HF output of the local HF transceiver. This third article describes a circuit designed to do that conversion and provide sufficient LF output level to drive the original power amplifier.

The Converter circuit

The circuit diagram of the converter is shown in figure 1. The conversion takes place in V1 (type NE602). The V1 circuit is almost identical to that used in my Active Loop Converter (*Amateur Radio* July, 2000 - ref 3) except that the input and output frequencies are reversed. I used the same 4 MHz xtal as in the receive converter as I had another one spare. Most HF amateur transceivers tune up to 4 MHz on the 3.5 MHz band so that it is simply a matter of setting the transceiver frequency to 4 MHz minus the LF transmission frequency. (4 MHz plus LF transmission frequency could also be used if the transceiver is tuneable above the 4 MHz. - This would make easier setting of the required HF frequency. Of course there is nothing to prevent some other crystal frequency

being used with appropriate setting of the transceiver output frequency.).

The overall circuit gain of V1 and V2 is arranged so that the HF input to V1 operates around 20 to 30 mVPP for peak signal level. This was chosen as it was anticipated that above these levels, steep increase in the level of intermodulation products could cause distortion in the audio signal when demodulated. This effect, relevant to the NE602, was discussed in one of my previous articles (A.R. Jan 1994, ref 4).

HF Transmitter Pick-up

There is no point in running the HF transmitter at high output level to generate a signal. I reduced the power on an FT101B used to around 1 watt by backing off drive to the PA. The output is loaded into a dummy load and paralleled off to an attenuation network R1-RV1-R2-R3. (Note the connection via the coaxial T connector in figure 1.). The precise amount of drive for a given HF transmitter power is set by RV1. Diodes D1 and D2 provide some protection to V1 in the event of excessive RF level.

LF Output

To attenuate mixing products above 200 kHz, the LF output from converter V1 is fed into a low pass network formed by L1-C9 and the feedback circuit of V2. The following LF Power Amplifier requires 6VPP at maximum swing and stage V2 raises the output from V1 to this level. The circuit is similar to that used at the output of SSB modulator (ref 2) but the gain has been raised from the original value of 10 to around 70 by changing the values of R5 and C8 to those shown. With this arrangement, the 6VPP is achieved with around 25mV of HF signal at V1 input. Maximum possible output level from V2 is 9VPP.

DC Power

The complete converter is powered from 12V DC and when operated in conjunction with the Power Amplifier (ref 1), the supply it is picked up from 12V in the Amplifier unit. A further 6V rail is derived with Zener diode ZR1 and resistor R7. This is used to power the NE602 converter, V1 and to set the operating point of amplifier V2 at half its 12V operating supply. Load current at 12 volts is 15mA.

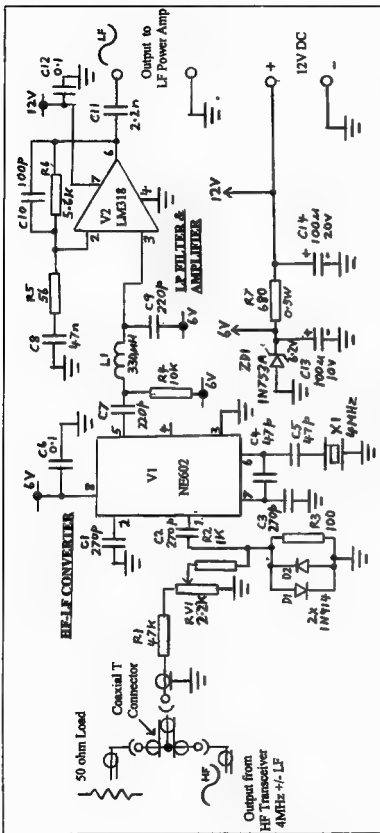
Components

There are no specialised components. L1 is a miniature choke available from electronics stores. The two I/Cs are mounted in 8 pin DIL sockets. The 4MHz crystal was a HC25 style but any crystal of suitable frequency could have been used. The precise frequency of the crystal can be adjusted by varying the values of C4 and C5. The input connectors, including the T, are BNC type but some other type could have been used. The small components (except R1) are mounted and interconnected on a piece of blank circuit board. To prevent stray coupling from the high level at the input to R1 from getting into the rest of the circuit, I found it necessary to remove R1 from the board and shield it and its connecting lead to the input connector. The complete unit is mounted in a 100mm x 60mm x 45mm aluminium box.

Adjustment, Operation, Performance

The only adjustment is the input level control RV1. For operation with the nominated power amplifier, RV1 is set for a maximum signal level of 6VPP at the output of the converter.

The converter has been tested in conjunction with a HF transceiver using



CW, AM, and SSB modes and with the LF Power Amplifier loaded into a dummy load. At the time of writing, negotiations by WIA for a new LF amateur band were still in hand. Hence, no air tests to date have been possible.

Performance Summary:

Low Frequency output range - 100 to 200 kHz

Input Frequency (with 4 MHz Crystal) - 4 MHz +/- LF

Maximum LF output level - 9VPP

Nominal working level at converter (NE602) input

for 6VPP LF output - 20-30VPP

Mode - any form at HF input (e.g. CW, AM, SSB, FSK)

Power rail - 12VDC

Power rail load - 15mA

Summary

A frequency converter has been described which can reproduce, at 100 to 200 kHz, any mode of transmission from the output of a HF transmitter or transceiver. Its output circuit was specifically designed to drive the power amplifier in the LF transmitter described in February 2000 AR. However it could be used to drive other LF power amplifier as required.

References

1. *An Experimental Low Frequency Band Transmitter* - Lloyd Butler VK5BR
Amateur Radio, February 2000.
2. *A Single Sideband Modulator for the LF Transmitter* - Lloyd Butler VK5BR
Amateur Radio, September 2000
3. *An Active Loop Converter for the LF Bands* - Lloyd Butler VK5BR
Amateur Radio, July 2000.
4. *The Bandwidth Limiting LF Converter Simplified* - Lloyd Butler VK5BR
Amateur Radio, January 1994.

Figure 1: HF to LF Transmitter Converter

ar

Commemorating The First Australian Callsign From Space

Many Australian Amateur Radio operators were able to make contact with Andy Thomas when he was on the MIR Space Station operating under the "Special Event" callsign of VK5MIR. This callsign was allocated for such use following an approach to the ACA Adelaide office by Ian VK5QX.

One aspect that may not have been fully appreciated was that Andy's operation resulted in the first use of any Australian radio callsign from space. It was obvious that, with such an operation as this, some kind of a special QSL card would be needed.

Whilst operating from MIR, Andy was not in a position to be able to keep what many of us would regard as a standard operations log. Thus it was not possible to provide confirmation of contacts made with regard to a particular time or date, as is the normal approach.

However, with this being the case it became possible to effectively "kill two birds with one stone", as the saying goes.

Ian had realised the potential for provision of a card which could be used as a QSL card as well as providing a commemoration of this unique event in Australia's history. He thus devised a card which served both of these functions.

The resultant composite multi-colour card depicts Dr Andy Thomas dressed in his "Russian" space suit as well as a photograph of the MIR Space Station which was taken by Andy during his departure from the Space Station in the USA Space Shuttle. It also carries Andy

Thomas' signature.

The card carries the following wording: "This card commemorates the first use of an Australian radio call sign from space", with the callsign "VK5MIR" appearing in large letters. It then continues: "This 'Special Event' callsign issued by the Australian Communications Authority was used by Dr Andy Thomas for contact with other amateur radio operators during his mission on the MIR Space Station from January 22 to January 22, 1998. Copies of this card have been provided to operators who made two way voice contact with VK5MIR."

On the lower portion of the card provision is made for entry of the callsign, name or position held by the person to whom the card is presented.



Dr Andy Thomas VK5MIR/VK5JAT

A copy of this "QSL" card was provided to all who had made contact with VK5MIR and who submitted their request for a QSL together with a self addressed, stamped envelope.

Arrangements were made by Ian for production of the card, which he



Dr Andy Thomas VK5MIR/VK5JAT examines his VK5MIR Station Licence



The "QSL" card which was provided to those who had made contact with VK5MIR

designed, with the computerised graphics/art work being done by his friend, Simon Bruce who, incidentally, happens to be the son of Robin VK5PRB.

In this commemorative form the card was most suitable for both intended purposes and has resulted in the event being recognised on an official bases by the government and Prime Minister of Australia.

As well as the normal postcard size cards a number of larger (A4) sized versions were printed and suitably framed. These were in turn presented to various people who had either contributed to the overall operations, in one way or another, or were in some suitably influential position.

These included the following:-

The Prime Minister of Australia, John Howard.

Senator Nick Minchin, Minister for Industry, Science and Resources

Senator Richard Alston, Minister for Communications and the Arts

Dr Reece Jennings, Mayor of the City of West Torrens

Mr John Wilson, South Australia Area Manager, Australian Communications Authority.

The framed copies of the commemorative card for the Members of Parliament were initially presented to The Hon. Warren Entsch, Parliamentary Secretary to the Minister for Science, who in turn personally presented them to the Prime Minister and Senators.

A postcard size replica was also provided to the particular individuals concerned.

It was made clear in accompanying letters to the Members of Parliament that the mementos were to be kept within the



PRIME MINISTER
 CLAREMONT

29 May, 2000

Mr Ian Hunt
 8 Dexter Drive
 SALISBURY EAST 5109

Dear Mr Hunt

Thank you for the memento you sent to me commemorating the first use of an Australian radio call sign from space by Dr Andy Thomas.

It was very thoughtful of you to forward this to me and it will remain the property of the Prime Minister's department.

With kind regards.

Yours sincerely



(John Howard)

cc: The Hon. Warren Entsch MP

office of their Ministries on behalf of the people of Australia. Written acknowledgment was received from both the Prime Minister and Senator Nick Minchin.

Thus a record has been established which will remain in the hands of the

Australian people for posterity and which also helps to ensure that in the future the pursuit of the hobby of Amateur Radio will be remembered as having been part of such space operations.



Ian VK5QX (R) presents VK5MIR Commemorative Card(s) to the Hon. Warren Entsch MP, Parliamentary Secretary, who accepted them on behalf of the Prime Minister and Senators Minchin and Alston



Ian VK5QX (L) presents the Commemorative Card to Dr Reece Jennings, Mayor of the City of West Torrens.

CQ CQ CQ de VK3BYE:

My story

Len Poynter VK3BYE

I became interested in amateur radio early in life and my first experience was pre-war; when commercial broadcasting stations only operated for limited hours; particularly at weekends. Outside these hours the amateur radio operators filled in broadcasting to listeners on the broadcasting band. Two stations I have memories of were VK3PA at West Preston and VK3GK in Brunswick. 3PA Perc' Anderson was popular as he played Stanley Holloway records of R' Albert. Quite comical renditions popular at the time. '3GK Stewart Maclean played

general music of the day. Now it came to pass that '3GK was situated up in Sydney Road Brunswick near Albion Street and happened to be on the route taken when visiting my grandparents who lived nearby. On one such occasion Stewart happened to be "on the air" as I passed with my sticky nose on the window. I drooled over the sight of him operating his station. He walked to the door saying "Hello young fellow, Would you like to have a look at my station?"

OH, YES PLEASE In I went. Well that was the start of my infatuation with amateur radio. I had to have one of those. I had to be part of the wonderful hobby. My very own radio station.

Unfortunately the war intervened. All the amateur stations were closed down for the duration. But the bug had bitten.

I continued with my interest in radio, getting into the construction of radios. I started with single valve receivers and gradually getting bigger and better. Most of these designs came from *Radio and Hobbies*: a popular radio hobby magazine that started just prior to WW2. Parts were difficult to obtain during the war, but we managed. My largest project was a seven valve super dooper, dual wave receiver with two RF stages and a four gang tuning capacitor: a really hot receiver. I started listening on short wave. I could now hear the world and it opened new horizons for me. I do recall listening to London and Germany. I had a neighbour who had knowledge of German and he translated it for me. What caught my attention were the German martial songs, that were played. I quite enjoyed hearing them without knowing

exactly what the words were. This was early WW2 propaganda.

I also discovered that you could hear long distance on the broadcast band, and was overjoyed to hear European, Asiatic and American stations. I was particularly pleased to hear so many American stations

I also became acquainted with sending listener reports and the thrill of receiving confirmation of my reports: the QSL card. My pride and joy was the reception of WOAI in San Antonio Texas. Broadcasting on a clear channel with 50 kilowatts, to the world. I was sent their QSL and regularly received station promotional material. I even heard my report read over the air.

"A report from our most distant listener... Leonard Poynter in Melbourne Australia... hears us often ... conditions permitting". Greeting Leonard from your friends in San Antonio Texas"

I was to hear many low powered German stations. One in particular normally running 25 watts, but only using their standby transmitter on 10 watts. Those were the heady days of BCB DX (DX means long distance). This was toward the end of the war.

Being part of it all

On short wave I was to listen to many South East Asian station toward the end of the war. My best one was to listen to the last ten minutes of radio Shonan (Singapore) under Japanese control and the first broadcasts under allied control. Then there were messages from Australian prisoners of war from Radio Shonan, passed on to the Red Cross. The war finished and hundreds of US hams started to flood the 20 metre band. It was a real pleasure to be part of it all, even as just a listener. It was to be some time before I was an active participant

With the return of amateur radio in Australia the first thing that changed was no more broadcast band amateur stations. That put an end to my ambitions of my own radio station. I had to learn about the communication part of the hobby at a later date

I guess I was too busy enjoying myself in the ensuing years and the only contact I had with amateur radio was during my stay in England when I met up with G3EOG who was just up the road from where I lived in Southampton. I had a few enjoyable hours chatting to friends

in the West Indies. I also had a good receiver during my sojourn in Southampton and was able to hear many VK contacts into England on 20 metres. This did make me aware of the values of amateur radio

After my return from England and my marriage I began to take a more active interest. In the late 1950s the WIA formed a short wave listeners group. I joined and became an Office Bearer. I can't recall my SWL number. There are still a few originals around

When living in Tottenham I built some 288MHz gear. A modulated oscillator transmitter and a super regenerative receiver. I had built a 16 element phased array and began my amateur career as a pirate: VK3--- and had many interesting contacts over the city and as far as Ballarat.

On moving to West Heidelberg, I commenced a course with the Wireless Institute to acquire the knowledge to sit for my licence. That was early 1958. I sat for the July exam for experience but was agreeably surprised to find the examination paper was a piece of cake.

I passed!

When the results came out I had passed and became VK3ZGP in September 1958. I had achieved my ambition: my amateur licence. A little different to what I had envisaged, but I was there. The next hurdle was to equip my station. In those days it was virtually impossible to purchase any equipment, unless you were rich. I wasn't, so I had to build mine. I constructed a three stage crystal controlled transmitter and a converter for the 50 MHz 6 metre band. Fairly straight forward 6CL6 oscillator, 6CL6 multiplier, 832A final about 20 watts input. Modulators in those days was push pull 6L6's in AB1 and a crystal microphone I had built a version of the BiSquare antenna: a relative of the Cubical Quad and got it up to 35 feet.

Joining WIA

In the early 60's I joined the WIA VHF Group which was a very large group. It was reformed and I was chairman for a while. Some well known amateurs of today were members of that group.

Almost immediately, I was into the DX. In those days interstate was the best DX: VK's 1, 2, 4, 5, 6, 7, 8 and 9. The real DX across to New Zealand: ZL's 1, 2, 3

and 4. When VK9 became P2, it was also like working real DX. I made WAVKCA on 6 metres after working VK0.

TV: the bane of the amateur!

At the same time I learned all about TVI: television interference. The bane of the amateur: front end overloading of the television set. I had some 30 televisions within 100 metres of me. The solution to that problem was quite simple. A trap across the antenna terminals of the TV to trap out my signals. Very effective in those days. I could live again. One of the problems was poor antenna design and installation. The geographical location and bad luck. The trap cured most of the problems, except for the people who took the traps off.

In 1960, we moved to Fawkner that was another situation. Took a while to get up and going, but eventually we got there. Then channel 0 arrived and a whole new ball game started. There was so much trouble that I was forced into semi retirement.

My favourite band in Melbourne was all but useless. I did manage to make it into Japan when I had the use of a 6 metre SSB transceiver and this was a bonus. Over the following years those who did not have channel 0 problems began to work the world. I got involved with credit unions and that kept me out of mischief for quite a few years.

Back to VHF

In 1973 I was able to purchase a used Yaesu FT200 SSB transceiver. I had visions of getting onto VHF again with more up to date gear. I had made a new friend who had just got his full call: VK3WU Alan Greening from Glenroy. Got into the habit of visiting him at the weekend. He constructed a cubical quad for 20 metres and had an old AM/CW transmitter.

Suggested we try my FT200 on the quad and we started to have a ball. The quad really worked; so too did the FT200. We were having great fun working new country after new country. We decided to try and make a DXCC in 12 months. That is to make contact with, and confirm a two way contact with 100 countries. Although it was quiet sunspot wise, we found it relatively easy to pile on the countries. Though, it was a little tough keeping the late hours we did.

Burning the midnight oil!

The band did not come alive until late evening and then going until the wee small hours. We burnt a lot of midnight oil, but we had a fabulous time. We even worked shifts to keep the DX happy and rolling. Many contacts were with stations working their first and only VK. Very satisfying to all. Well, we did it. In just 365 days we worked 252 countries to achieve 100 confirmations! It was hard work but we enjoyed every bit of it. As a result of this I became interested in propagation. Trying to find out why and how there were times you could and times you couldn't. Others talked about sunspots, the solar flux and A index. They were then starting to become available through WWV. I started to study available information about the phenomenon. Did I find some information? I could not believe how much was available on the subject. For that matter how many experts were prepared to go into print on the subject, and their pet theories. Very baffling to the uninitiated. I was able to gain access to all locally measured and recorded data. This told me how local conditions could be at variance with the empirical models of the ionosphere. No matter what happens (for it to directly affect you) the path has to be in daylight. Then a storm will affect your communications. The warnings given by WWV are of importance, specifically (if the time of the event is known I developed a nose for sniffing out events as they were about to happen: particularly recurring events.

Why is it to your advantage to keep a record of solar activity?

I found it was to my advantage to be on HF to follow events, observe the effects and note what these events produced

This culminated with the arrival on the Novice class licence. Had to make 5WPM Morse then sat for the first Novice examination and finished as VK3NAC. No 3 Novice licence in Victoria. I then started to earnestly DX on 21MHz and 28MHz. I tried to use all my knowledge and experience when I commenced operations

Morse therapy

I genuinely became interested in using the Morse code and CW, spending a considerable part of my time on CW. I made the first Novice WAC and first Novice DXCC. I made a CW WAS on 21MHz, not the first novice as a VK2 had made it on 28MHz SSB. I had worked some 5000 W's as a novice and the majority on CW. That was across the period 1977-1979. I was working toward my full call late in 1979 when I had a slight stroke (CVA), and finished up in hospital on the day of the Morse test. When I was discharged I had lost the use of my right arm (temporarily). My rehabilitation was using the Morse key. Supporting my right wrist with my left hand I was able to use the key, slowly getting back the use of my right hand with flexibility and to also write again. That was a relief. I was able to sit the first test in 1980. I made the full licence and the call VK3BYE; surrendering VK3ZGP and VK3NAC.

It was then into more serious DXing. I finished on 28 MHz in 1982; the band was no longer open when I was around. I purchased a 3 element monoband Yagi for 14MHz and proceed to make hat while the sun shone. Though it was a sunspot minimum I was able to work a fair share of the DX. I had obtained a TS820S with external VFO and a 500Hz CW filter in 1979.

Working very well on 28 MHz along with a 5 element Yagi and worked around 200 countries on 10 metres, before going to 20 metres. Working the DX at the time was limited by the usual commitments, but I managed a fair share.

On retiring in 1986, at the bottom of the cycle, I spent about 6 months waiting for the commencement of the new cycle. This kicked off in May 1987 and my knowledge of the signs of the new cycle enabled me to get a good start into North America before the big guns started firing. I was fortunate to be able to work many new countries in the oncoming years. I spent 75% of my time on CW, only using a hand key. I had incurred a disability after my CVA in 1979. I had difficulty in reading anything faster than 10WPM and, as I could not remember, I had to write it down.

So long as the speed remained constant I was safe. Most of the time I got by. I slowly took my country count

to 287 confirmed, there are another 20 that I will never get confirmed as I had a thing about direct QSLing for a few years.

I have lost all chance of them being confirmed, unless I can work them again in the future. At the peak of my activity I was able to manage up to 35 CW QSO's a day and the odd batch of CW contacts. I had made many friends all over the world and over the years have had visits "eyeball QSO's" with about 25 hams from USA, Holland, Japan, Germany and England.

Still a challenge

I have retired from 20 metres now. My antenna has been damaged beyond repair. I have since rebuilt my 21 MHz 4 element monoband Yagi and patiently await the return of conditions to get into the DX again. Somewhere along the way the TS820S or I will bite the dust. Don't know who will be first. I haven't regretted my decision to become an amateur. I feel that it was and still is a challenge. I have always operated with a minimum of equipment. Fortunately, I have had some good antennas, especially my 9 element long Yagi on 6 metres. The 30 foot boom did a beaut job but the TVI problem short-circuited that. But, I had a great time being one of the mob. My only regret: missed working JY1. Perhaps one day.

PS

Some two years later I look back at events over the period. I had plunged into DX on 21MHz. This was in the ascending period of cycle 23. Yes my TS820S did bite the dust not long after I posted the above comment. It proved to be a difficult repair. I eventually replaced the finals and all the high voltage capacitors. The were other glitches but with the assistance of my learned friends out of the chancs it re-emerged; not quite the old box of tricks but still capable!

Career Highlight comes late

The DX season of 1997/1998 was to be the highlight of my career. On 1 January 1998 I managed 48 QSO's. By far the best effort I have ever participated in. Over the remainder of the year and into 1999 I was able to greatly increase my DX totals. Then early in 1999

following the installation of telephones via the street coaxial cable I became aware of what I considered interference being radiated from the cable. Following requests to the operator and tests with various filters it was now apparent that life on the DX bands was not going to be the same. It was well nigh on impossible to hear weak signals arriving via my 4 element Yagi. I had to make some big decisions.

Unfortunately, on the side a domestic problem had been building for some years reached a climax. To settle the situation we made the decision to put our home up for sale. I decided to completely retire from chasing DX. Neither decisions were easy to make. In September 1999 VK3BYE closed down from the Fawknor QTH.

For the time being VK3BYE continues to operate on 144MHz, chatting with a small group of friends.

73, Len Poynter VK3BYE

17

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Noise Cancelling at HF and VHF

Ian Cowan, VK1BG.

This is a story which tells how an old ATU was used to rid the HF bands of crud from nearby switch mode power supplies, and in turn to rid the two metre band of some very annoying computer type birdies

For some time now I have been the victim of what must surely be some of the dirtiest switch mode power supplies in the business. I suspect that the offending equipment is installed in a house near mine. It is in operation most of the time, puts unstable S9+ birdies every few kHz across the 80 and 40 metre bands, and between the birdies there is continuous hash of S7 or greater. The crud from this equipment extends to the higher bands, but the levels fall with frequency, and it is most offensive below 10 MHz. Not only that, but this gear also radiates in the two metre band, with two distinct noise centre frequencies at 144.185 and 144.235 MHz (the former being a recent addition) and masses of birdies extending up and down from each of these.

This has gone on for some time, but I have until recently done nothing to counteract the noise, hoping, I think, for the obviously inferior equipment to self

destruct or otherwise be replaced with something modern. So it was some time before I built up enough angst to do anything about it. The belated result is a design that is capable of killing the noise completely on both HF and 2 metres, and leaves me wondering why it took me so long to do so little for such a good result. The outcome of this exercise may be of interest to others, so the general arrangement described below.

There have been several articles published in this magazine about noise cancellers including a passive design by Drew Diamond, VK3XU, which appeared in October 1976, and two active designs by Lloyd Butler, VK5BR which appeared in September 1992 and January 1993. All use the same basic idea; namely that two antennas are used simultaneously for reception. The main station antenna is used as the primary gatherer of the wanted signal. This also

picks up crud, which spoils the signal to noise ratio at the receiver front end. A second antenna is used to pick up as much of the offending crud as possible, but preferably not much of the wanted signal. The crud antenna need not be anything flash, but the closer it is located to the noise source the better. Drew Diamond suggests a wire strung along the boundary fence, and that sounds good to me. Because the two antennas are separated in space, the outputs of the two differ in phase, and the phase relationships should be different in each for the wanted signal with respect to the noise. By careful adjustment of the phase and amplitude of the signal from the crud antenna with relation to that from the station antenna, it is possible to cancel out the crud without significantly affecting the wanted signal. This is a result akin to magic!

The approaches by Drew Diamond and Lloyd Butler did not entirely suit

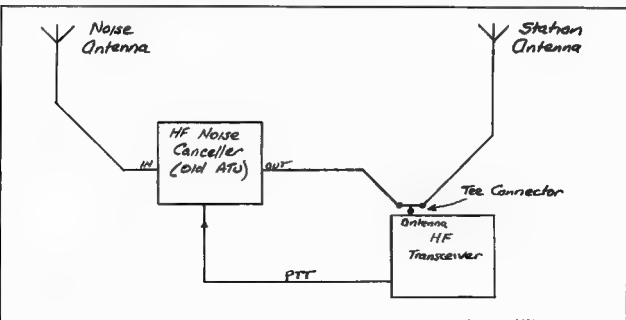


Figure 1

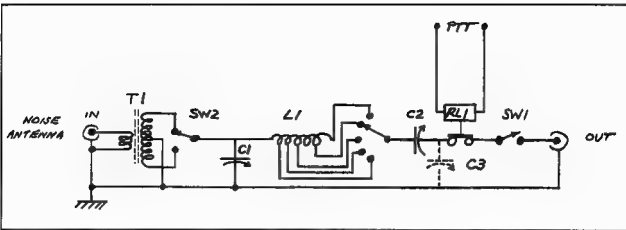


Figure 2

me. Drew's approach made use of potentiometers in the signal path, and Lloyd's meant undertaking some solid state construction. Both approaches require fairly extensive external RF relay work for their use with a transceiver. I was after a quick fix, and started with HF.

It so happens that there was a redundant HF ATU sitting on my shelf. This unit is a derivation of the wide range ATU described by Ron Cook, VK3AFW, in the February 1983 issue of the magazine. Its most interesting feature is that it uses a series tuned circuit arrangement (plus shunt capacitors) to achieve the wide matching capability. A series tuned circuit can provide substantial phase shifts when tuned either side of resonance. It also happens that there already was a second HF antenna available at my QTH, and that it collects even more crud than does my main station antenna, as it is closer to the offending noise source. My quick fix solution for the HF problem was to use the old ATU to provide the necessary phase and amplitude control of the noise from the second antenna, and to feed this into the transceiver, along with the signal from the main station antenna, via an ordinary coaxial Tee fitting. Figure 1 shows the general idea, while figure 2 details the circuit of the noise canceller module. In practice the old ATU is connected backwards, in that the nominal input of the ATU, which normally would go to the transceiver, connects to the crud antenna instead. A normally closed contact on a relay powered from the PTT line in the transceiver was added to the ATU, and

isolates the noise canceller when transmitting.

The system worked well from the beginning. 80 and 40 metres were virtually unusable without the noise canceller, but with it, the crud could usually be tuned out completely. With the original configuration, finding a null could be a bit tricky on some frequencies, involving juggling the settings on three capacitors to get the best result. To overcome this, I have followed the lead of Diamond and Butler, and installed a phase reversal switch. This makes finding a null easier and eliminates the need for one of the three variable capacitors (shown as C3 on figure 2) as well. It does not take long to find the best settings for a deep null, and it is like magic when doing this on a really loud birdie to discover that underneath it is a clean intelligible signal. An unexpected bonus is that the noise canceller can also be used to cancel out other forms of electrical noise (commutator or power line noise for example) but it can only fully null out one source of noise at a time. Drat!

Looking more closely at Figure 2, SW1 and RL1 provide for manual and PTT isolation of the noise canceller from the transceiver. RL1 prevents energisation of the sense antenna through the noise canceller when transmitting, and SW1 allows the system to be disabled when not required. T1 and SW2 provide 180 degree phase switching, useful for speeding up the null finding process. T1 is a small toroid that has a trifilar winding of about 10 turns wound onto it. I don't think the number of turns or type of toroid is at all critical. C1 has

capacity variable up to about 1200pF. In my case it comprises a three gang tuning capacitor from an old valve type broadcast receiver, but there are other ways of getting the necessary variable capacitance, for example switched fixed capacitors and a smaller variable.

L1 and C2 form the series tuned circuit which is the heart of the system. C2 is a variable capacitor that can be somewhere between 50 pF and 100 pF. It is mounted on an insulating support, and is fitted with a plastic control shaft to maintain isolation from ground. The coil L1 is also non-critical. Mine is fairly large as a result of its ATU heritage. It comprises about 40 turns wound onto a piece of plastic drain pipe about 43 mm outside diameter. Taps are selected to provide for resonance in the bands of interest with C2 at about mid range. The whole lot is built into a small aluminium box.

There is nothing hard about the installation of this system provided a decent amount of crud can be collected the noise sensing antenna. This can be checked by comparing noise levels at the transceiver, when each antenna is connected alone. I have the choice of two antennae for noise pickup. The first is a half size G5RV that I used for my first noise cancelling experiments the other is a random long wire which runs along the back fence. Both work OK, but the long wire performs better on 80 metres, so I use it as a matter of course.

Tuning for a noise null is largely a matter of selecting the appropriate coil tap and then juggling the capacitor settings to first find, then refine the null. If there is no null, or it is too shallow,

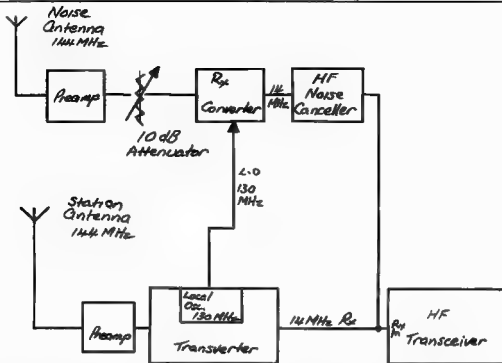


Figure 3

repeat the exercise with the phase selector switch in the other position. There is often more than one combination of capacitor settings to achieve a null.

The success of the HF canceller led to some more experiments to see if the principle would also work on 2 metres. In this case I was not confident that phase cancellation could be easily achieved directly at 144 MHz, and in addition I did not want to put anything in the signal path which might degrade the noise factor of the station receiver when the crud was not present. My 144 MHz station uses a home brew transverter to allow access to the SSB portion of the two metre band using an old FT101B as the base transceiver. So I opted to perform the cancellation at the first IF, which in my station is 14 MHz. This was simply performed using an old two metre converter that happened to be in my junk box, modified to accept the master oscillator signal generated by the main transceiver. This modification was essential, as it is the only way the outputs of this external converter, and that already in the transverter can be guaranteed to remain locked in phase. Without this, phase cancellation at the IF would be impossible. The general

configuration is shown at Figure 3. For simplicity this shows the receive line only. The noise antenna is a 5 element NBS type Yagi, pointed at the suspected noise source (and away from the station antenna). Because it has lower gain than the normal station antenna, and because of the necessarily long cable run from it to my shack, I have used a preamplifier (also from the junk box) at the antenna so as to yield plenty of noise signal in the shack to play with, and I control its output in the shack with an adjustable 10dB attenuator (Neither of these measures was found necessary with the HF canceller). The HF part of the noise canceller configuration is the same as in the HF version shown in figure 2, though there is no need for band switching for operation on a single VHF band. Isolation of the system when not needed is achieved using SW1 in the noise canceller. As the canceller in the VHF system is outside the transmit signal path, there is no need for a PTT operated isolation relay.

Once set up, the adjustment of the VHF canceller is the same as for HF, except that the best noise nulls are achieved by adjusting the noise preamp output as well as the capacitors in the HF noise canceller.

The improvement offered by the VHF canceller is just as dramatic as that from the HF version, and because the VHF noise sources appear to be crystal stabilised there is little need for tweaking to counteract frequency drift of the noise. However readjustment is needed to compensate for rotation of the main station antenna as this affects both the phase and amplitude of the noise signal picked up by that antenna. In my case this is an acceptable imposition, as I generally don't need noise cancellation except when beaming NorthEast.

For me, the result of this exercise has been better than expected, and I have regained the use of the 80 and 40 metre bands, and the North East sector on 144 MHz. There are undoubtedly other amateur radio operators living close to people with non EMC compliant electrical equipment, and the simple approach to noise cancellation presented above may provide some ideas leading to a quick, cheap and effective remedy, hopefully making use of odds and ends from the station junk box.

73 de Ian Cowan, VK1BG.

Easy CW-2

David A. Pilley VK2AYD
e-mail: davpit@midcoast.com.au

In AR December 1998, I introduced you to "Easy CW" and a simple way to decode good telegraphy from your receiver to the computer. The response was good and I hope that all those that made the simple interface unit enjoyed the results.

The transmitting side is even easier! I recently had the opportunity to evaluate the "WINCW" programme developed by Stephen Stuntz, N0BF. This is simplicity in the making!

The programme has been designed for Windows 3.11, 95 and 97 and is quite small, only requiring 61 kb of hard disk space. This includes the .exe, .dll, .ico and .set files. It arrived on a standard 3.5 inch floppy and was very easy to install.

I installed the programme on an old 486SX machine that operates under Windows 3.11. This is my work horse computer that is used for contesting, logging, electronic workshop, etc. It's ancient, but never fails me. It grew up with me - and I'm ancient! The programme took only a few seconds to install and, using my existing keying cable attached to serial port 2, I was sending telegraphy.

The programme is a full screen display, with a menu bar that really is a reminder pad in case you forget the "F" key or "Ctrl" key functions. You can store 10 messages and call them up as needed and they can be edited at any time. A "repeat" function is provided so that the message(s) can be repeated at time intervals, like calling "CQ". The code speed can be from 5 to 90 wpm. Yes - 5 wpm without a pump handle to send it! Side tone is provided from the computer speaker so you also practice "off air".

A buffer, or backspace-correction, is provided so if you are a speed typist at say 50 wpm and you are only sending at 20 wpm, you can back space and correct any errors before it is sent. NO, you can't correct it after you have sent it!

Provision is made for the selection of serial port so you are not stuck with Com

1. However, you will need to make up an interface cable between the computer and your transmitter. You will have to search through the junk box for a PNP transistor and a 10k resistor. This is to protect the computer from any fancy keying voltage getting back into the computer. If you do have any high voltage keying systems, you should provide a relay to interface.

I also installed the programme on the Pentium III 550. Again, simple and no problem. For those interested in adding this to your modus operandi, you can obtain a copy of the programme directly from Stephen Stuntz N0BF, 3413N Duffield Ave., Loveland, CO 80538.

Cost: \$US25 plus postage.

73
David VK2AYD



P. Smith VK2SPS

4/6 Taranto Rd, Marsfield NSW 2122
Phone (H) 02 9876 8264 (M) 0419 602 520

Ham Radio Accessories are the sole agents in Australia for the German made Schurr hand made keys and Iambic Paddles.

I've used these keys over the years and have some in my collection; the keys and paddles are made of full brass MS 58. Hard silver is used for the contacts with needle bearings of finely sanded hardened steel. The brass surfaces have been polished and are tarnish proof. All keys and paddles are supplied with a flexible cable and are hand made in Germany.

Some of the Keys and Paddles offered are as follows: -

Mahogany Hand Key	\$349.00
Small Straight Key	\$279.00
Mini Key	\$209.00

Profi - 2 (Iambic Paddle) \$369.00
Portable Iambic Paddle \$309.00
Further enquiries can be made to: -

Ham Radio Accessories,
Carsten Alex Pedersen VK40A
98 Thiess Drive
Albany Creek QLD 4035
Ph: 07 3264 6443 Fax: 07 3284 1774
E-mail: pedersen@powerup.com.au
"The Art and Skill of Radio
Telegraphy" by William Pierport N0 HFF

This great book is now available in "French" and was kindly translated by Maurice Golombani-Gaillieur F6IIE, it can be downloaded from: - <http://f6iie.free.fr>

Other interesting websites to look at are:

1) <http://www.net-magic.net/users/w4fok/>

- 2) Dr Jon Oates - <http://www.joates.demon.co.uk/megs/>
3) Dave Clarke - <http://www.raes.ab.ca/book/index.html>

I have a special request to ask of readers of this column. I am trying to obtain information especially drawings of and photographs of the vessel "Empress of India" first of the Canadian Pacific Railways Royal Mail Line to the Orient. The Skipper was Capt O. Marshall, her sister ships were - Empress of Japan and Empress of China. They were built by the Naval Construction & Armament Company at Barrow-in-Furness. Any information would be greatly appreciated.

See you next month.
Stephen P. Smith VK2SPS

Lighthouse weekend wash up

Ross Barlin, VK2DVZ
rbarlin@turboweb.net.au

A great weekend was had by all at the Crowdy Head lighthouse (QF68jd) over the 21-22 August weekend. The AX2000 special event call sign also proved to be very much sought after, particularly on the HF bands.

On 2m we managed to work as far north as VK4TZL at Hervey Bay (QG65), VK4IC (QG63) and VK4ALM (QG62) and to the south VK1VP and VK2MP (QF44). A few traces of the boys at Green Cape lighthouse (QF52) were heard on 2m on Sunday morning, but the signals did not rise enough to manage a contact. All the same to hear some signals from a halo antenna, if I'm not mistaken, over an approximate distance of 640 km with a very average setup using a 12 element DL6WU Yagi and RX preamp in the 80 watt solid state PA. was pleasing to say the least.

I hope to try out a halo for myself some time to get a feel for what they are capable of.

On 70 cm we did not fare as well, with just a hand full of contacts.

Thanks to those who made the effort to work us. We look forward to more contacts when next we work portable from Crowdy Head.

Incidentally, the light house keeper is a great bloke with a lot of experience with many of the 'exotic' locations around our vast coastline. He gave us access to the building after we gained permission from AMSA, encouraged us in our efforts, joined in our BBQ's, shared our overnight accommodation and invited us back again. Perhaps we will be able to get him to join us with a VK call sign sometime in the future?

The public relations side of things went off well, with the TV crew arriving



Taree ARC, AX2000: from left Ross VK2DVZ, John VK2SWR, Roy VK2EBR, Kevin VK2ZKC, Ken VK2KYO

before we were properly set with transmitters, etc. They still gave our setup a good airing on the local news broadcast on Saturday evening. On Sunday, the local newspaper photographer arrived and took lots of shots, so we wait to see what will come out in the way of a story. They gave us at least 3 lots of pre event write ups before last weekend.

A steady stream of visitors came by to enjoy the scenery, watch for whales, and to see what the 'mad amateurs' were up to. We gave out our information sheets about amateur radio, the weekend and our local club. Members the Great Lakes

amateur radio club also called by to offer encouragement and to check out their neighbouring club in action.

Sleep was short with most of the participants having at most two to two and a half hours rest. We have since made up for the loss.

Much was learned as a result of the outing; so next time those bugs will be sorted out.

I hope all other participants around VK, ZL and in fact around the world enjoyed the non contest weekend as much as members of the Taree and District Amateur Radio Club Inc. did.

73 and good DX, de Ross Barlin, VK2DVZ



Two views of Crowdy Head Lighthouse

Robin L. Harwood

After the Ball

Well the XXVII Olympiad and the Paralympics that followed shortly after, have both now ended and all the hoopla has now subsided. However because of the vexed question of rights, many shortwave stations did not broadcast live events, either over shortwave or over their Internet browser. In fact, organizations like the BBC and our own ABC, completely closed down their audio streams in case any Olympic events were accidentally aired live. Apparently the American NBC network acquired the Internet rights to stream events on to the Net, which was not openly available but on subscription. A similar arrangement apparently was in place here in Australia with access1. They apparently had the C7 Pay TV only available on subscription.

The NBC network decided to delay telecasts of the events by up to 12 to 18 hours, airing them in prime time in the evening, so as to maximize advertising exposure. However it backfired as most managed to get the results from the Net or from news sources. However other networks that did not have the rights were not able to show highlights in their newscasts before the particular event had been first shown on NBC. They had to rely on still photos and a report from somebody well away from the Olympic venue. Also the IOC was particularly suspicious of the Internet and many dot.com reporters were not accredited.

Our own Radio Australia did broadcast the Games live around the clock and many thousands tuned in to hear the broadcasts on two dedicated frequencies. However if the Darwin site had been available or arrangements made for the use of overseas relays, the audience would have been in the millions instead of the thousands. The BBC World Service did have some descriptions available but they seemed to be replays.

The main Trans-Pacific HF channels for aero communications from Brisbane were really busy on the day after the

Olympic Closing Ceremony, when everybody wanted to get home speedily. I have never heard the channels as busy as they were on that day.

The Paralympics were not as frenetic as the Olympics, with a lower profile. The publicity was not as extensive as the main Games, another network had the rights and the media presence was not as large.

In Late September, Radio Netherlands announced that their very popular communications programme, *Media Network* was no longer going to be broadcast over radio as from the 26th of October. Jonathon Marks has been producing the programme since 1980 and was joined in recent years by Diana Jansen. Diana left the programme in mid September.

And as Jonathon had other commitments with the RN organization, it was felt that the programme had outlived its usefulness. The programme may have ended on radio but it will be available on the Internet as what they call an *e-zine* or electronic magazine from the RN website. Former WRTH editor, Andy Sennitt, will be compiling it.

Naturally there are many upset fans of *Media Network*, including yours truly. As many have pointed out, the majority of shortwave listeners do not have Internet access, especially in Asia, Africa and other regions lacking a suitable communications infrastructure. The cost of the Internet means that only a very select few have ready access to the Net. As the Olympics Internet saga has demonstrated, commercial as well as political interests can muzzle the Net, when there is a perceived conflict of interest.

Dr. Kim Andrew Elliott, will continue to host *Communications World* over the VOA on Saturdays. It is the natural successor to "MN". Glenn Hauser does host a weekly review of media developments, aired over several stations yet it has to be recorded in

advance for some stations. Marie Lamb hosts *Cumbre* over World Harvest Radio (WHRI, WHRA & KWHR) but this is primarily a DX programme. I have not heard HCJB's *DX Partyline* for some time.

The next broadcasting period (B00) commenced on the 29th of October at 0100 UTC.

Expect quite a number of changes and even whispers of a major international broadcaster quitting HF altogether. Programming to Europe and North America has been steadily declining and this decline will probably escalate. However shortwave is far from dying as there are plenty of signals still about. You only have to hear the thousands of voices on SSB all over the HF spectrum, often ignoring ITU bandplans to realize that shortwave is still being used to communicate.

The Croatian Radio from Zagreb, ceased broadcasting from the Julich, Germany site as from September 30th. This was a good signal here into Australia and interesting also as it had a short English news broadcasts during their broadcasts. However European monitors report that Croatian programs are continuing from the site of Deanovac in Croatia in the 49 metre band as well as 9830 kHz. Radio Yugoslavia also lost the use of the senders that are in Bosnia.

The Presidential election will be held on Tuesday November 7th and results will be available on Wednesday from about midnight UTC. Expect extensive coverage on the VOA and the BBC World Service on shortwave. Incidentally those AFRTS stations I mentioned recently being back on shortwave have been easily heard here. However each feeder has a separate programming source, allowing a wider choice. 6350 is the best channel here. However I am unsure which base it is coming from.

Well that is all for this month. Until next time, all the best in monitoring

Robin L. Harwood

Low Band Receiving Antennas

Receiving DX signals on 160 metres and 80 metres is often limited by noise and interference. A directional antenna can help by reducing noise and interference coming from different directions to the wanted DX signal. The Beverage antenna is well known but it requires a lot of land to accommodate it. There are other approaches such as loops and the EWE antenna. The EWE antenna was described in QST Feb 1995 by WA2WVL.

A group of ground independent terminated receiving antennas was described in QST July 2000 by Earl W. Cunningham K6SE. These antennas are the Flag, Delta, Pennant, and Diamond antennas. These antennas and the EWE are shown in Fig 1. Work on these antenna designs has been carried out in a number of cases by Jose EA3VY.

A 160 metre Point Terminated Pennant has a 14 foot vertical section with the point of the pennant 29 feet from the vertical section. The bottom of the pennant is 6 feet above ground and

the terminating resistor is 903 ohms. The antenna has a cardioid pattern with a 37.5 dB null at the rear. Feedpoint resistance is 860 ohms. The antenna is not greatly affected for antenna heights between 1 foot and 25 feet. The antenna exhibits a deep null to the rear on both 80 and 40 metres and the feed impedance is still around 900 ohms. The pattern is shown in Fig 2, and Fig 3. The patterns are typical of all of this type of antennas.

A variant is the Point Fed Pennant. The dimensions are the same but the terminating resistor is 860 ohms and the

feedpoint impedance is 903 ohms. The performance is similar to the Point Terminated Pennant.

The Flag was developed by EA3VY to reduce the effect of the earth on a EWE design. The vertical sides of the Flag are 14 feet with the two horizontal sides being 29 feet long. The feed point and the termination are in the middle of the vertical sides. The feed point resistance and the termination resistance are both 945 ohms on 160 metres. The null at the rear of the cardioid pattern is 35 dB with respect to the front. The performance is similar on both 80 metres and 40 metres. The signals from the Flag are 5 to 8 dB greater than from a Pennant on 160 metres.

The Diamond is a rotatable version of this class of antennas. The vertical dimension is 14 feet and the horizontal dimension is 29 feet. The termination and feed point impedances are 925 ohms.

The Delta is another rotatable configuration which is 17 feet vertically and 28 feet horizontally. The feed point and terminating resistances are 948 ohms on 160 metres.

To feed the 900 ohm feed point impedance a transformer is required. The author used a Palomar FT-140-43

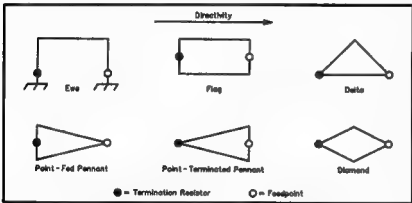


Fig 1. Ground Independent Low Band Receiving Antenna Configurations.

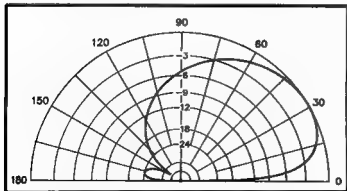


Fig 2. Elevation Plot of Point Fed Pennant over good ground.

Commercial RF Probe

For those who just want to use an RF probe there is a commercial RF probe which is available from a local firm. It has wide frequency response and good performance. It has been on show at some clubs and hamfests. It is available from RF Probes PO Box 6 Greensborough Vic 3088. The company can also be found on the web at www.rfprobes.com.au.

toroid core to wind a transformer. The primary and secondary were wound on opposite sides of the toroid core. The low impedance winding was 8 turns. The high impedance winding was 34 turns if 50 ohm coax is used and 28 turns for 75 ohm coax.

The use of a preamp is recommended as the antennas have low gain. Also to reduce common mode currents on the cable a choke balun is recommended at the transformer end of the cable. A suitable choke balun can be made by winding a coil of 10 or 12 turns of the feedline 12 inches in diameter. An alternative choke is to cover about 12 inches of the cable feedline with high- μ ferrite beads.

The antennas were modelled with EZNEC which is available from Roy Lewallen W7EL, PO Box 6658 Beaverton OR 97007 USA. Email is w7el@teleport.com.

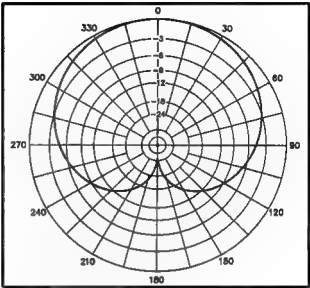


Fig 3. Azimuth Plot of Point Fed Pennant at 30 degree elevation angle over good ground.

Diode Probe

Following publication of the RF Probe in the April issue VK4BBL referred the item to his friend Ned Raub W1RAN who responded with a different design.

Ned W1RAN pointed out that the use of a 1.8 pF coupling capacitor and an RFC in the probe could lead to some problems. The capacitor value will limit the lower frequency performance and the RFC can influence performance at both the lower and the upper frequencies. The design of wide range inductors for RFC's is complex and compromises are made.

Ned W1RAN proposes a circuit shown in Fig 4. which is reminiscent of the circuit published in Jan which prompted

the circuit published in April. Ned uses a 10 nF coupling capacitor to a shunt diode followed by a 1 Mohm resistor to another 10 nF filter capacitor at the output to a high input impedance DVM.

The 10 nF capacitor is charged rapidly on the first negative half cycle and is subject only to the drain of the 1 Mohm resistor and the DVM. Thus on the following positive half cycle the loading is minimal as the coupling capacitor is charged and the only loading is the 1 Mohm resistor and the back biased diode. On the subsequent negative half cycle the still charged capacitor is of little account for loading. The circuit loads the circuit only with the current

through the 1 Mohm resistor and the DVM input impedance.

The circuit supplies close to twice the peak voltage to a high input impedance DVM input. For 10 Mohm input impedance of the DVM the input divider of the 1 Mohm resistor and the 10 Mohm input will present an input to the DVM close to 90% of twice the peak RF voltage. To read peak voltage a DVM input impedance of 1 Mohm is required. This can be achieved by using a shunt resistor at the DVM input. For RMS reading then the 1 Mohm should be 1.36 Mohm and the DVM input should be shunted to 636 Kohm.

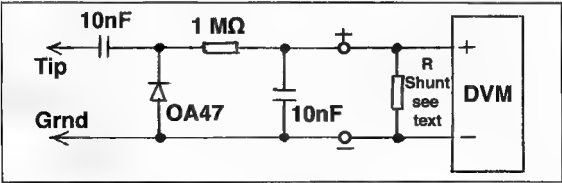


Fig 4 RF Probe.



Women in

YL2000 International From Hamilton



Back row: Bev VK6DE, KayWA0WOF, Sally VK4SHE, Christine VK5CTY

Row 3: Muriel (SWL), Maria VK5BMT, Unni LA6RHA, Bev ZL1OS (hidden), Lynn ZL2PQ, Ruth LA6ZH, Evelyne F8RPB, Ella GØFIP, June VK4SJ, Eileen ZL1BRX, Fortuna ZL1TOZ, Ruth IT9ESZ, Dot VK2DB, Margaret ZL3UD, Jill ZL1BDO, Celia ZL1ALK

Row 2: Biny ZL2AZY, Rosemary ZL1WRD, Jacqueline ZL1JAO, Alma ZL1WA, Carol ZL1ASL, Poppy VK8YF, Ada ZL1ALE

Front row: Cathy ZL2ADK, Carol ZL2VQ, Pat ZL1LD, Rajja SMØHNV, Gwen VK3DYL, Elizabeth VE7YL, Alison ZL1TXQ, Robyn VK3WX, Sue ZL3AHY

The weekend in Hamilton was amazing. There were nearly 200 people there, with over 100 YLs. Fourteen countries were represented. It was a very well run weekend. The ZL committee of Biny ZL2AZY, Carol ZL2VQ, Cathy ZL2ADK, Bev ZL1OS and Jill ZL1BDO deserve all the credit possible for their efforts. It is difficult to imagine anyone who could have chaired the whole weekend more efficiently than Carol. She never missed a beat and coped with the unexpected as well as following the program.

From the moment we arrived at the informal gathering on the Friday evening there were no hitches and no drop in the level of happy talk. Can you imagine how many languages there were with

people from 14 countries all in one room? I rather suspect the VK and ZL amateurs were the least multilingual but, if words did fail, the smiles were enough to share the happiness. Australia was represented by 13 of us including 2 brave OMs VK2, VK3, VK4, VK5 and VK6 were all there. We all met many old friends and made a number of new ones.

The next International YL Meet will be in Palermo in June 2002. More will be heard of this in this column as the time gets closer. Although 2002 is also the year of the next ALARAMEET in Murray Bridge we hope that a number of the international YLs and many ZLs will be able to combine both meets,

perhaps in a Round the World tour.

A couple of highlights that come to mind are the beautiful voices of the five Korean YLs when they sang, both in the "cathedral" of the Waitomo Caves and, dressed in national costumes, at the formal dinner on Saturday night, the spontaneous singing of "Waltzing Matilda" by the ALARA members as they were lined up for a group photo, and the marvelous sight of Hamilton, laid out like a toy train set, from the bubble of the Catalina (though the fact that a minor problem with one engine had had to be fixed by the application of a YL nail file did upset one or two passenger).

Radio

Christine Taylor VK5CTY
VK5CTY@VK5TTY or geencee@picknowl.com.au

In Hamilton New Zealand at the YL2000 International there were a number of DX YLs known to many DX operators so your reporter took the opportunity to interview some of them. It is only when you have time to talk to people you realise both how different their lives are from your own and how similar they are.

RUTH LA6ZH

Ruth has been licensed since 1963; she has a husband and 3 sons. One of her son's got his amateur licence in the 1950's and suggested that Mum should get a licence, too. If he thought this would keep his mother at home more he was right, but it is certain that he did not realise that through amateur radio his mother would gather friends from all round the world.

Ruth operates 95% of her time with a key but she does have a microphone for contacts with those who "do not understand CW". Ruth will be well known to many others who talk to the world through their fingers

UNNI LA6RHA

Unni has held her licence for 10 years and has enjoyed amateur radio and the island of Svalbard to such an extent that in 1998 she hosted the very first international gathering of YL in Svalbard. Svalbard belongs to Norway but has a population of 0.35 when the number of people is compared with the number of polar bears!! It is not surprising that Unni owns and can use a 357 magnum!!

Unni is the reporter for the Norwegian YL magazine, so is well known in her world. She also uses her radio skills with the fire/rescue services in Norway as are so many VK YLs. She will be on the Norfolk Island Tour that follows the YL2000 in Hamilton so hopefully many of the readers of "Amateur Radio"

MARCIA K6DLL

Marcia has held an amateur licence since 1950, at which time she lived in Florida and was given the callsign W4STU. Her husband was stationed in Florida then with the air force, but when he was sent overseas she moved home to California where she was allotted her current callsign.

Marcia is a regular on the YL 14.222 Net on a Monday afternoon and has been a WARO and ALARA member for many years.

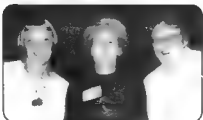
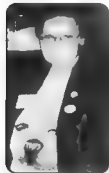
CELIA ZL1ALK

Celia has been licensed since 1960. She is well known to many amateurs who have visited New Zealand as she and Geoff have hosted many of them during the years that they have been active in radio. They have 3 sons one of who has a licence but is inactive. When the children were young there were many family activities such as transmitter hunting that they all enjoyed. Do radio clubs still run fox-hunts and so on that families can participate in or are we all too busy to organise them?

Celia is well known to all YLs in ALARA. She was one of the foundations members of the ZL YL organisation, WARO, and is one of the voices heard in all the ALARA Contests and Birthday Greeting Days



Left: Christine VK5CTY and
Marcia K6DLL
Below: Inge OZ7AGR and
Bjarne OZ2UV



Above: Unni LA6RHA
Right: Maria VK5BMT, Ella
GØFIP and Eileen
ZL1BRX



Above: Pat ZL1LD, Biny ZL2AZY and Bev ZL1OS

DON'T MISS THE ACTION!

Uniden 245XLT Trunk-Tracker™ Scanner

Now you too can follow the activity on the "trunked" radio networks used by many Government, business, and emergency services organisations. The new Uniden 245XLT Trunk-Tracker is a specially designed scanner that can read the control channel data on a number of trunked radio systems, allowing the receiver to follow specific users, or groups of users, as their transmissions automatically change frequency through a trunked network. Compatible with many Motorola and EDACS analogue trunking systems, the 245XLT is also supplied with a PC interface cable for use with third-party software. The 245XLT covers 66-88, 108-174, 406-512, and 806-956MHz and provides 300 memories in 10 banks for storing favourite frequencies, 5 pre-programmed Search-bands, Multi-Track scanning that allows you to scan a mix of conventional and trunked systems, and 10 Priority channels (one per memory bank). Super-fast Scanning and Search facilities are also provided (Scan at 0.0 channels per second for non-trunked services, and Search at either 100 or 300 steps per second), as well as battery-free memory back-up. Data skip to limit reception of data transmissions, an Attenuator to reduce overload from very strong signals, and a Battery Save facility to extend battery life. Each 245XLT is supplied with a NiCad battery pack, AC charger, flexible antenna, PC interface cable, and detailed instructions.

02735

Uniden

\$529



Yaesu VR-500 Multi-mode Scanner

The new VR-500 is more than just a scanning receiver, it's more like a miniature high performance monitoring station! Providing almost continuous coverage of the 100kHz to 1300MHz range, the VR-500 includes reception of narrowband FM, wideband FM (for FM and TV broadcast audio), SSB (for Amateur CB and HF reception), CW, and AM (for shortwave and broadcast station) signals. A large backlit LCD screen not only displays the receiver operating frequency, but also displays channel steps and reception mode. For monitoring band activity above and below your current listening frequency, the VR-500 even provides a 60 channel Bandscope to display local activity (within a range of 6MHz max when used with 100kHz steps). A total of 1091 memory channels are provided, with 1000 of these being "regular" memories with a phenomenon tagging, and the balance being for special features (such as Search band memories, Preset channel memories, Dxt Watch memories and a Priority memory channel). A Smart Search™ function, which sweeps a band and finds in-use channels, allows you to locate up to 41 memories that can automatically note these active frequencies. The VR-500 operates from just 2 x AA "size" alkaline batteries and can be connected to an external 12V DC source (such as a vehicle cigarette lighter) using the optional E-DC-S adaptor. For easier operation, the VR-500 can also be connected to your PC using the optional ADMS-3 interface/software package.

02759

YAESU

\$699



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A shopping experience like no other!

Dick Smith PowerHouse stores not only offer an expanded range of those original electronics products that have made our stores famous, but now you can experience the fun of using a wide range of communication equipment in our hands-on demonstration area.

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Not involved in Ham Radio? Staff can also advise on the installation of a CB radio for your four-wheel drive vehicle, how to get involved in listening to Shortwave radio stations from around the world, or assist you in the selection of a suitable accessory for an existing piece of equipment. For bushwalking or boating users, you can also find out about the latest in inexpensive satellite based navigation receivers or emergency beacons, or just browse through an extensive selection of communications related books.

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With over 20,000 product lines in the electrical, computer, and communications areas, our new PowerHouse stores get the wavelength right!



DON'T MISS THE ACTION!

Economy Soldering Station

Affordable quality for the technician or enthusiast. This new soldering station provides variable temperature control from approx. 250°C to 450°C, plus zero voltage crossing circuitry for low noise operation. While not a sensor-compensated temperature-controlled design, it is suitable for a wide range of soldering applications. It features a lightweight soldering pencil with heat-resistant cable, iron holder and a tip clean ring sponge, and is full Energy Authority approved. Supplied with a long-life 1.6mm plated tip.

T 1975

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SAVE \$20

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If you use your 2m band FM handheld at home or in the car but find that 2.3W RF output isn't enough for reliable communications, then this compact 30W RF amplifier may be the answer. It works with inputs from 0.5 to 5W and produces up to 30W output with just 3W input. A switchable 12-15dB gain low-noise GaAs FET receiver pre-amplifier can be selected for improved receiver performance on less sensitive hand-helds when being used in RF quiet areas. The amplifier offers a large heatsink for extended duty-cycle transmissions, fused DC power lead, and SO-239 input/output connectors. Frequency range 144-148MHz, FM only. Size 100 x 36 x 175mm (WHD).

D 2510

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The rugged 58TV incorporates Hustler's exclusive trap design (25mm solid fibre-glass formers, high tolerance trap covers and low-loss windings) for accurate trap resonance with 1kW PEP power handling. Wide-band coverage is provided on the 10, 15, 20, and 40m bands (SWR typically 1.15:1 at resonance, <2:1 SWR at band edges), and 80kHz bandwidth on 80m. An optional 30m resonator kit can be installed without affecting operation of other bands. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantees optimum mechanical stability. At just 7.65m long, the 58TV can be fed with any length of 50 Ohm coax cable.

D 4920

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Yaesu FT-90R 2m/70cm micro mobile

Another engineering breakthrough from Yaesu – a tiny dual band mobile rig with high power output, a remoteable front panel, and a rugged receiver front-end. The FT-90R provides 50W RF output on the 2m band as well as 35W output on the 70cm band, a solid die-cast casing with microprocessor controlled cooling fan for reliable operation, and a large back-lit LCD screen, all in a package measuring just 100mm x 30mm x 138mm.

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Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. One councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcasts schedules and subscription rates. All enquiries should be directed to your local Division.

Broadcast schedules All frequencies MHz. All times are local.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601
President Gilbert Hughes
Secretary Peter Kloppenburg
Treasurer Ernie Hosking

VK1GH
VK1CPK
VK1LK

VK1W: 3.590 LSB, 146.950 FM each Sunday evening from 8.00pm local time. The broadcast text is available on packet, on Internet aus.radio.amateur.misc news group, and on the VK1 Home Page <http://www.vk1.wa.ampr.org>

Annual Membership Fees. Full \$77.00 Pensioner or student \$63.00. Without Amateur Radio \$48.00

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 1066, Parramatta 2124)
(Office hours Mon-Fri 1100-1400)
Phone 02 9689 2417
Web: <http://www.ozemail.com.au/~vk2w/>
Facsimile 1800 817 644
e-mail: vk2w@ozemail.com.au
Fax 02 9633 1525

President Michael Corbin
Secretary Barry White
Treasurer Pat Leeper

VK2YC
VK2AAB
VK2JPA

From VK2W: 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup aus.radio.amateur.misc, and on packet radio.

Annual Membership Fees. Full \$78.00 Pensioner or student \$61.00. Without Amateur Radio \$47.00

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue & Thur 0930-1500)
Phone 03 9885 9261
Web: <http://www.bbs.com.au/~wavic/>
Fax 03 9885 9298

e-mail: wavic@alphalink.com.au
President Jim Linton
CEO Barry Wilson
Secretary Peter Will

VK3PC
VK3XV
VK3APO

VK3BW broadcasts on the 1st and 3rd Sunday of the month at 8.00pm. Primary frequencies, 3.015 LSB, 7.065 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RML 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full \$78.00 Pensioner or student \$61.00. Without Amateur Radio \$47.00

VK4 Division Queensland
GPO Box 638 Brisbane QLD 4001
Phone 07 3221 9377
e-mail: office@qwa.powerup.com.au
Fax 07 3286 4929

Web: <http://www.wa.org.au/vk4>
President Colin Gledstone
Secretary David Jones
Treasurer Bill McDermott
Office Mgr John Stevens

VK4ACB
VK4QF
VK4AZM
VK4AFS

VK4WIA broadcasts on 1.625 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.860 MHz FM (pt), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605 SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and audio files available from the web site

Annual Membership Fees. Full \$85.00 Pensioner or student \$72.00. Without Amateur Radio \$58.00

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992

Web: <http://www.sant.wia.org.au>
President Jim McLachlan
Secretary David Minchin
Treasurer John Butler

VK5NB
VK5OK
VK5NX

VK5W: 1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mt North, 146.800 FM Midyuna, 146.825 FM Barossa Valley, 146.900 FM South East, 148.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, AT Ch 35 579.250 Adelaide, (NT) 3.565 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday: 3.565 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday.

Annual Membership Fees. Full \$77.00 Pensioner or student \$63.00. Without Amateur Radio \$48.00

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873

Web: <http://www.ozemail.net.au/~vkwia/>
e-mail: vkwia@ozemail.net.au
President Neil Parnell
Secretary Christine Bastin
Treasurer Bruce Hodland-Thomas

VK6NE
VK6ZJ
VK6OO

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz. Country relays 3.582, 147.200 (R) Catalpa, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury), 147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz. Country relays on 146.900, 147.000, 147.200, 147.250 and 147.350 MHz. Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full \$89.00 Pensioner or student \$58.00. Without Amateur Radio \$38.00

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: <http://www.tasnet.edu.au/tasonline/vk7wa>
also through <http://www.wia.org.au/vk7>
email: batesgw@notspace.net.au

President Phil Corby
Secretary John Bates
Treasurer John Bates

VK7ZAX
VK7RT
VK7RT

VK7W: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.825 (VK7RMD), 3.570, 7.090, 14.150, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full \$58.00 Pensioner or student \$75.00. Without Amateur Radio \$55.00

VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz)

VK1 Notes

Forward Bias

The guest speaker, at the General Meeting on 25 September 2000, was Mr Bruce McLaughlin. Bruce works for Transact, the company that is going to change the way we communicate with the world. He said that at present, most residential homes receive Television signals via a dish or VHF/UHF antenna, and that the computer and telephone connect through copper wires to the exchange and the rest of the world. Transact will offer something similar to cable television but in a much more expanded way. In fact, a bandwidth of 36 Mbps is offered to customers, making it possible to deliver data, video, and telephone services, all at the same time. Bruce explained that the system for Canberra consists of digital equipment that connects mainly via Fibre Optics, except for the last 300 metres to the customer's home where it terminates in a little black box. That part uses CAT-5 copper cable. However, any length more than 300 metres would not allow the guarantee of 36 Mbps. The Canberra system is planned to be interconnected

with Nodes and Super Nodes in suburban streets, Hubs in suburbs, and a Gateway at a central point in North Canberra. The advantage of this system with its very wide bandwidth is the speed of delivery and interactivity. Video is available from many different sources as well as Data and Voice services; the latter being virtually free amongst Transact customers.

On a different note: The ACT Technical Advisory Committee (ATAC) got together on October 4, 2000 to discuss the implications for the 70 cm bandplan, now that the ACA has decided to limit access to the first 10 MHz of that band. ATAC, under the chairmanship of Ernest Hocking, VK1LK, discussed the various options that are open to users of the remaining part of the band. A draft proposal - Modified 70 cm Band Proposal (430 to 440 MHz) - was put together and sent to John Martin, Chair of FTAC, for consideration and comments. The discussions included subjects like LIPD channels, links and repeater input/

Peter Kloppenburg VK1CPK

output shifts, channel raster/interleaving, directional antennas, squelch and CTCSS options, and future frequency management. Importantly, the aim was to fit all existing 70 cm activities into the 430-440 MHz slot, with the exception of ATV. Furthermore, to comply with international usage, avoidance of LIPD interference to repeater inputs, and to minimise changes to existing services.

A vacancy is becoming available for a QSL (Outwards) Manager in the Division. Mike Jenkins, VK1MJ, who has performed this task for the last four years, is looking for another challenge and will resign at the end of the year. You can contact Mike on 6295 2220, or Gilbert Hughes on 6254 3266 for details about the job.

The next General Meeting will be held on November 27, 2000 at the Griffin Center, Civic, Canberra City. And, don't forget Folks, this is the last meeting for 2000! It will be celebrated with a Trash & Treasure sale, and a Party. Everyone is welcome. Cheers, Peter K.

VK2 Notes

from Pat Leeper VK2JPA

available for the transmitter, oscillator and PLL system.

The receiver has a free running pccl oscillator and a 70MHz IF amplifier. Both the transmitter and receiver are a gold mine of SMA connectors and mechanical components suitable for constructing microwave filters. These units will be on sale at bargain prices that will make the purchase worthwhile just for the connectors.

There are also power supply modules with large heatsinks and other modules that are a good source of difficult-to-obtain components such as high quality tantalum capacitors. If you need LEDs or 4000 series CMOS ICs then we have those too in PCBs that will be available at modest prices.

That's all for this month.

Well, another big occasion is over, but there is still more to come, and to have gone by the time you read this. This latter is of course the Paralympics. The AX2GAMES callsign will be running during these games.

It is unfortunate that we could not get enough volunteers to man the Parramatta station during the Olympics, but there were amateurs who ran the callsign from their home QTH and club stations. We thank the amateurs from the Manly-Warringah club and those from the Newcastle area, who between them made five and a half thousand contacts in sporadic operation over the period on 10, 15 and 20 metres, with a few on 80 metres. They had good world coverage with satisfactory conditions.

The next Conference of Affiliated

Clubs will be held at Amateur Radio House at Parramatta on Saturday 11th November. The conference is not scheduled to run into the evening so there will be only one meal catered for.

The WIA (NSW) has received a donation of surplus microwave equipment consisting of 5 watt transmitters and receivers in the L microwave band. The transmitter is in two parts, being a 500mW oscillator and a 5W power amplifier with a directional coupler and detector to measure the output power. Initial tests show the transmitter can be tuned to the 23cm band for wide-band FM use such as ATV or data transmission. The oscillator is locked to a crystal with a phase locked loop system. Circuit diagrams should be

VK3 Notes

www.tbsa.com.au/-waviac email: waviac@alphalink.com.au

By Jim Linton VK3PC

Membership recruitment and retention

At the WIA Federal Convention held six months ago a major item for discussion was membership recruitment. All WIA divisions left that meeting with a commitment to consider how they could boost membership.

WIA Victoria has for the past 12 months through its promotional efforts targeted both existing (non-member) and prospective radio amateurs, with some positive and measurable results. Our recruitment level, that is new joining members, increased 25% between January and September 2000. At the same time our loss of membership was small when the GST and other external factors beyond WIA Victoria's control are taken into account. A key factor to recruitment and membership retention is our Internet website. It receives more visits than our office in Ashburton. The ability to communicate with individual

members, and a large section of the membership via email, also has its decided advantages. It has also resulted in considerable interchange of communications between WIA Victoria and its members, with most days having at least one new piece of e-correspondence that needs a response.

Inquiries from non-members about how to join WIA Victoria, the closest active radio club, or where to sit an examination, are frequently received. It is pleasing to see the names of those making such inquiries often finding their way into our new members list. They must have gained a positive image of WIA Victoria through the email correspondence and the content of the website. In fact the website is our best single recruitment tool.

VK3BWI broadcast

As previously mentioned in this column, an ongoing shortage of volunteers is causing ongoing difficulties. The Council at its meeting last month reluctantly accepted the resignation of Bill Trigg VK3JTW, who had been on council since 1983. Bill resigned due to personal reasons. His dedicated contributions in servicing the membership included an almost continuous involvement with the VK3BWI broadcast, being its coordinator for a considerable time. With his retirement from council, and no-one else offering their voluntary services, the broadcast now goes to air only on the first Sunday of the month at 8pm. The requirements of a broadcast producer were reported in the VK3 Notes column in May 2000.

New Secretary appointed

The council has appointed John Brown VK3JJB to the position of Secretary. John had previously been the Administrative Officer. Taking on the office of Secretary is an expansion of his previous duties. John has also joined the council as a director. The council stands at five, and efforts are continuing to find other suitable volunteers to join council.

Finding new radio amateurs

In a recent speech I gave to the Eastern and Mountain District Radio Club the topic of the future of amateur radio was

discussed. While the numbers of radio amateurs in Australia is not experiencing a period of growth at the moment, to put it politely, the solution is in the hands of existing radio amateurs. I suggested that if each and every existing radio amateur set a personal goal of generating one new radio amateur every ten years, the hobby would be in a much better position in decades to come. Think about it. It should not be that hard to find, encourage, and assist an individual to join our wonderful hobby. You don't even have to leave the comfort of your home, or even while at work. The trend towards learning on the Internet offers an excellent way for today's radio amateurs to be give a hand up to a budding radio amateur.

JOTA and other activity

"Be radio-active - not radio-passive" is a theme we could perhaps adopt as a new millenium replacement for the old phrase of "use it or lose it". Where are all of those stations heard in the Remembrance Day Contest during the rest of the year? A similar comment can be made about some participants in the 2000 Oceania DX Contest, JOTA, and particularly the creme de la creme of tests, the CQWW Contest. Activity on the bands is good for the hobby! Band occupancy can play a part when the WIA seeks to defend amateur allocations, obtain expansions or even new allocations. While checking scores of QSL cards for the bureau recently I noted that many overseas stations have simple wire HF antenna systems. The DX is good at this time of the sunspot cycle. If you're not radio-active then why not get on and give it a go?

And if VHF and UHF bands are your cup of tea - then the WIA Victoria George Bass Diploma for simplex contracts between the mainland and VK7 may interest you. The diploma proved so popular last year it is available again this summer. Contacts made last summer will also qualify for this seasons diploma. The rules appear on the WIA Victoria website, or can be obtained on request to the WIA Victoria office.

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VK4 Notes

Q News

Free Band in Toowoomba for VK4

In the Toowoomba Chronicle of last Friday, Gary Rizynski the Station Manager for WIN-TV Toowoomba announced that Channel 5a [137-144 MHz] would cease transmissions this month. An engineering spokesman told QNEWS that their channel 0 frequency (45-52 MHz) at Mt Mowbull (QG62) would still be operational for some time yet. As Terry VK4KTP said "So now all we have to do is wait and see if the '5a' closure actually happens, it has been promised a couple of times before. Then we might be able to use the bottom end of 2 metres, or even make use of some of the weather satellites."

Good Scout!

Scoutings Chief Commissioner of Australia, Dr Bruce Munro has appointed Stephen Watson VK4SGW to the position of National Co-ordinator, JOTA/JOTI. VK4SGW's predecessor Harvey Lennon VK7KSM has resigned following completion of a three year term, the role previously having been fulfilled by Noel Lynch VK4BNL (SK), and Peter Hughes VK6HU. Steve will be continuing as Queensland JOTA/JOTI Co-ordinator, and Joey Scout Leader at Pioneer Park Scout Group. His contact details, Stephen Watson VK4SGW, 7 Landel Ct. Kirwan QLD 4817 Phone: 07 4723 2185 Fax: 07 4723 6372

Email: shwatson @ bigpond.com.au

Look at the Scouting Web Page at <http://jota.scouting.net.au>

Harmonic Production Alert

Announcing the production of 2 new harmonics to the VK4SGW home QTH! At 10am Saturday September 30th, twin harmonics Charlotte and Gillian. Congratulations to XYL Heather for doing all the work and hope Steve/VK4SGW is starting to recover from the midnight shift!

International Links

Rick P29KFS, QNEWS rebroadcaster in Port Moresby, reported a huge radio fadeout during a recent relay, at 2321 UTC. The fade took VK4MU Theo's 20-metre signal from 9 to nothing in about 20 seconds and it stayed at zero for 4-6 minutes, but was still barely detectable. Was the rest of 20-metres also dead?

Wayne VK4NWH, QNEWS 10-metre SSB rebroadcaster, says YJ8WR, Wayne in The New Hebrides is rebroadcasting QNEWS from 10 or 20 metres over their local 2-metre repeater. Callbacks are being conducted in the region, so we'd be pleased to get some regular reports.

Amateur Radio Hour

Hot off the wire from Alan VK4PS. In Townsville, the 4TTT-FM Amateur Radio Hour has moved to a new time

and new day of the month. Listen for the next session on 103.9MHz FM on Wednesday 4th October from 7pm to 8pm!

Funday 2001

Brian VK4BBS is offering your Club in the Brisbane area, the chance to host the FUNDAY 2001. A great opportunity to promote your club in your local area, as part of the greater exposure of Amateur Radio. Expected to be held as usual, sometime early in February. To find out more contact:

VK4BBS Brian Beamish. VK4BBS @ VK4WIE.#BNE.QLD.AUS.OC

WIAQ Ventures Forth

An upcoming meeting of the WIAQ is to be held in the fair City of Rockhampton. On the 25th November, with final arrangements yet to be made, the Council and other interested parties will be in Rockhampton to conduct a meeting. This will hopefully allow the workings of the Council to be seen and heard directly by the members in this region. Also an opportunity to have Councillor Clive Sait VK4ACC sitting in on the proceedings rather than wearing out his ear on the monthly telephone conference hook-up.

73's from Alistair

VK7 Notes

QRM — Tasmanian notes

Last month I reported on the all out war in the southern branch during the weekly foxhunts. The battle was won by the intrepid team of VK7RB, Robert and VK7DG, Dale and their prize? — The dubious honour of being the first fox in the new series that has started on October 12th. More exciting (?) news next month.

All our branches are busy organizing their December end of year celebrations — usually a good "tuck-in" at a worthwhile restaurant. An outing that many people look forward to each year is the "Sewing circle" barbecue at Rosy Vanyan, Forreth on the 11th November.

Bill Donald, VK7AAW, reckons he's the only one with a 4 letter suffix — double A, double U — get it? is mine host there and it's always quite a day. The 'sewing circle' is tied in with the Tuesday evening Tassie Devil net on 3.59 MHz.

Following some months of classes when the numbers dropped from 10 to four students we hope that exams on the 17th of October will see some new amateurs on air from the south.

We must take this opportunity to remind all members that February/March are the annual meeting months at all branch and Division levels. There are many jobs in all the branches

that need volunteers — how about YOU.

By the time you read this the North-west branch will have been the communications arm of the Challenge 2000 car rally the first of two major car rallies in that part of Tassie. Down south the Saxon Safari participants braved snow rain and ice and the 28 amateurs and helpers had a hard time coping with the wild weather and formidable terrain problems. Their portable repeaters worked well and the southern operators and the Saxon safari management voted it a "Top shelf team effort."

Cheers for now Ron Churcher VK7RN.

John Martin, VK3KWA
FTAC Chairman

2 Metre Band Plan

There has been a change to the 2 metre band plan: a national APRS frequency of 145.175 MHz has been adopted.

Changes to 2.4 GHz Band Plan

The 2.4 GHz band plan has been revised following the withdrawal of the 2302 - 2400 MHz segment from amateur use. The effect of this change will be minimal because this segment had to be cleared several years ago when it was allocated to MDS pay TV. The small segment from 2300 to 2302 MHz has now been tagged for use by repeater links. The band plan for 2400 - 2450 MHz remains unchanged.

Revised 3.4 GHz Band Plan

The 3.4 GHz band plan has been revised to work around the spectrum losses announced by ACA earlier this year. The main change is the loss of the weak signal segment around 3456 MHz. This has been relocated to 3400 MHz, in line with the IARU Region I band plan. Other changes include some shuffling of the ATV and other wideband segments, to make the best use of the 200 MHz of spectrum that we still have.

Please replace your copy of the 3.4 GHz band plan with the one given below.

Australian Amateur Band Plans: 9 Cm Band

Band Allocation

3300 - 3800 MHz	RADIOLOCATION	Primary Service
3300 - 3800 MHz	AMATEUR	Secondary Service
3400 - 3410 MHz	AMATEUR SATELLITE	Secondary Service
3400 - 3600 MHz	FIXED SATELLITE (Space to Earth)	Secondary Service
3400 - 3800 MHz	FIXED, MOBILE	Secondary Service

From January 2000, amateur operation is prohibited in some portions of the band: see Note 6. The weak signal segment has been relocated from 3456 MHz to 3400 MHz.

Band Plan

3300.000 - 3320.000	Wideband Channel 1, Atv Links	(Note 5)
3320.000 - 3340.000	Wideband Channel 2: Voice/Data Links	(Note 5)
3340.000 - 3360.000	Wideband Channel 3: Simplex, Any Mode	(Note 5)
3360.000 - 3380.000	Wideband Channel 4: Atv Links	(Note 5)
3380.000 - 3400.000	Wideband Channel 5: Voice/Data Links	(Note 5)
3400.000 - 3402.000	Narrow Band Modes	(Note 1)
3400.000 - 3400.100	Eme Only	
3400.100 - 3400.400	Terrestrial, Cw / Ssb	
3400.100	Calling Frequency: National Primary	
3400.200	Calling Frequency: National Secondary	
3400.400 - 3400.600	Beacons	(Note 2)
3400.600 - 3402.000	General / Experimental	
3402.000 - 3405.000	Fm Simplex	(Note 4)
3402.000	National Voice Calling Frequency	
3403.000 - 3405.000	Digital Data	

3400.000 - 3410.000	Amateur Satellites	(Note 3)
3410.000 - 3425.000	All Modes	
3425.000 - 3492.500	No Operation	(Note 6)
3500.000 - 3520.000	Wideband Channel 6, Atv Links	(Note 5)
3520.000 - 3540.000	Wideband Channel 7: Voice/Data Links	(Note 5)
3542.500 - 3575.000	No Operation	(Note 6)
3580.000 - 3600.000	Wideband Channel 8, Atv Links	(Note 5)

Note 1: Narrow Band Modes

This segment is reserved for modes such as CW, FSK and SSB only. Weak signal operation has absolute priority. Calling frequencies should be used only to make initial contact and then vacated as soon as possible. Please avoid any terrestrial operation within the EME segment.

Note 2: Beacons

Beacon frequencies are allocated on a call area basis, e.g. VK1: 3400.410 - 3400.419, VK2: 3400.420 - 3400.429 etc. Further details are in the paper "Guidelines for Unattended Transmitters". Beacon frequency spacing is 2 kHz. The beacon segment should be kept clear of any other transmissions.

Note 3: Amateur Satellites

There are no amateur satellites currently operating or planned for this band.

Note 4: FM Simplex

Recommended channel spacing is 100 kHz. Channels reserved for special purposes should be kept clear of other operation.

Note 5: Wideband Modes

These segments are for wideband simplex operation or duplex links. Suggested uses are:

ATV: Mode F3F (FM ATV) with +/- 9 MHz bandwidth. Video carrier at centre of channel. Recommended duplex link channels: For 60 MHz offset, channels 1 and 4. For 140 MHz offset: channels 4 and 6. For 200 MHz offset, channels 1 and 6. For 280 MHz offset, channels 1 and 8. Recommended simplex channel: channel 3.

Data or Voice: Recommended channel spacing is 100 kHz, or 1 MHz for high speed data, excluding upper and lower segment edges, with voice links at the lower end of the segment and data links at the upper end. Recommended duplex link segments: For 60 MHz offset, a frequency pair from channels 2 and 5, for example 3321.0 and 3381.0 MHz. For 140 MHz offset, channels 5 and 7. For 200 MHz offset, channels 2 and 7.

Note 6: Restricted Segments

In the band segments 3425.0 - 3442.5 MHz and 3475.0 - 3492.5 MHz, operation is prohibited in and around most major population centres. In the segments 3442.5 - 3475.0 MHz and 3542.5 - 3575.0 MHz, operation is prohibited in most parts of Australia. For full details, refer to the current ACA Amateur Licence Conditions Determination.



Bill Magnusson VK3JT

How Good are your Feedlines?

Now seems to be a good time to reprint this excellent article by Geoff VK2ZAZ. It appeared in 1990 in issue 65 of the *Amsat-VK* newsletter. The original idea came from an RSGB publication circa 1980. I built up a copy of this little device and it has paid for itself many times over. With satellite downlink and uplink frequencies being pushed higher and higher, the condition of our feed lines is becoming more critical to the overall performance of any satellite earth-station. Wouldn't it be a pity to have good transceivers, good antennas, good computing software and hardware and to find you have a weak link in the

chain in the form of lossy feedlines. As described the simple RF power meter can be used to determine power levels in the range 100mW to 2 Watts. It can thereby be used to check the condition of your co-ax feedlines. A 2 metre or 70 cm hand held transceiver set to low power is an ideal power source and will ensure that you don't inadvertently burn out the device. When applied to co-axial cable it can be used to accurately determine the losses to be expected in your feedlines. If carefully constructed, it will give accurate results up to 500 MHz making it ideal for use up to 435 MHz directly and the results can be

extrapolated to higher or lower frequencies. The circuit and construction details are shown in Fig. 1. I made mine around a BNC plug rather than a socket because I was lucky enough to obtain a tiny concentric 50 ohm resistor about as big as a three-penny bit and that made the construction even simpler and more efficient as shown in Fig-2. Please don't ask me for a source of these concentric resistors. I was given one by a friend and his source has dried up. If anyone knows of a current source *please* let me know. Provided the lead lengths are kept to an absolute minimum the Fig. 1 construction will do nicely. Using two 100 ohm resistors is an attempt to increase the power capability and also to lend some symmetry to the circuitry.

The device is first calibrated by plugging it into the antenna jack of a hand-held radio. With the radio on low power, use a digital voltmeter to get a reading on the output. Record this reading and plug your co-axial cable to be tested into the antenna jack of the hand-held and plug the little device into the other end of the coax. Take another reading. This will be less than the original reading (unless you have some of that "high-gain co-ax" that you hear talked about in certain circles). How much less is a measure of the loss in your co-ax cable plus connectors. To work out the loss in dB we first calculate the power in Watts in each case using the formula:

$$\text{power} = (\text{voltage} + 0.7)^2 / 100.$$

You can then use the normal dB = log P1/P2 formula to find the loss in the co-axial cable. Geoff included a simple 10 line basic program for doing the calculations. Even if you can only manage to produce test RF on (say) 145 or 435 MHz, the results can easily be extrapolated out to 1200 and even 2400 MHz or down to 50 MHz or HF frequencies. I also have a simple basic program for doing this. I can email these

The AMSAT organisation.

AMSAT (Amateur Radio Satellite Corporation) is a worldwide organisation with its roots in the USA. Its origin can be traced back to 1958, just a year after the launch of Sputnik-1. Since that time AMSAT members have been involved in the design, building, launching, commissioning, upkeep and of course, the day-to-day use of amateur radio communication satellites. The parent body is AMSAT-NA (North America) and many other countries have similar special interest groups operating.

AMSAT-Australia

Our local organisation is known as AMSAT-VK. The National Co-ordinator is Graham Ratcliff VK5AGR.

Membership of AMSAT-Australia.

AMSAT-Australia operates an open membership system. No formal application is necessary and no membership fees apply. From time to time new software, firmware and hardware is developed and distributed through AMSAT-VK channels. Write to the co-ordinator to express your interest or pop up on the HF net.

AMSAT-Australia HF Net.

The AMSAT-Australia net meets formally on the second Sunday evening of the month. During the winter months in South Australia (end of March until the end of October) the net meets on 3.685 MHz +/- QRM at an official start time 1000utc with early check-ins at 0945utc. During the summer months when daylight saving is in operation in South Australia (end of October until end of March) the net meets on 7.068 MHz +/- QRM at an official start time of 0900utc with early check-ins at 0845utc. The times and frequencies have been chosen as the best compromise for an Australia-wide net taking into consideration seasonal propagation changes and the various state summer times. The net is open to all amateurs, beginners or experienced, who have an interest in amateur radio satellites. Help and information for beginners in particular, no matter how trivial, is freely and cheerfully available on this net.

The AMSAT Journal.

An excellent bi-monthly journal is available with formal membership of AMSAT-NA. It contains details of practical projects and ranges over all aspects of amateur radio satellite operations. As of 01Jul00 the cost of AMSAT-NA annual membership will be US\$45 payable to AMSAT-NA 850 Sligo Ave, Silver Spring, MD 20910-4702 U.S.A. or you can phone, fax or email your subscription using your credit card. The phone number is 0011-1-301-589-6062, the FAX number is 0011-1-301-608-3410 and the email address is martha@amsat.org.

All Communications regarding any matters mentioned above should be addressed to:

AMSAT-Australia.

GPO Box 2141, Adelaide, SA. 5001.

email, vk5agr@amsat.org

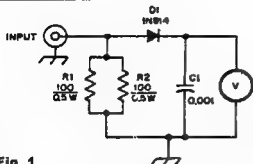


Fig. 1

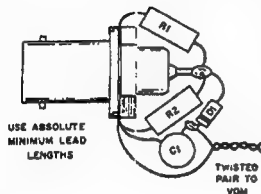


Figure 1

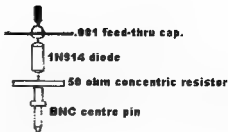


Fig. 2

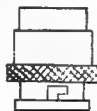


Figure 2

two programs to anyone who needs them. A few key strokes on a calculator can do the same thing of course.

This little device is well worth another look. It has a permanent place in my tool kit and is just as relevant 10 years on in 2000 as it was back in 1990 ... or 20 years on from 1980 for that matter. Thanks Geoff, no excuses now for faulty co-ax in anyone's Phase 3D setup.

Phase 3D Launch Preparations.

The planned mid-November launch of Phase 3D is now looking fairly certain. A short delay of a couple of weeks was due to the non-arrival of one of the other satellites scheduled to be launched with P3D. Peter DB2OS reports that P3D's fuelling operations are now complete. The last chemical to be added in the fuelling process was NH₃, with P3D becoming only the world's second satellite to use ammonia in its fuel, a first for spaceport Kourou! Following the fuelling operations, Phase 3D is ready to be moved into the final assembly building at the European Spaceport. The

next move will be to install the satellite onto the Ariane 5 launch vehicle. The launch team has updated its Internet web site with several new photographs showing the Phase 3D fuelling process. To visit the site, point your browser to: <http://www.amsat-dl.org/launch/>. The next week or two should be very exciting indeed.

Please be patient with Phase 3D.

The latest flagship of the AMSAT fleet will be close to launch or may well be in orbit by the time you read this column. You will still have plenty of time to get your station ready though as the commissioning of this satellite will be a complex and time consuming matter. Peter Guelzow DB2OS has reminded all satellite operators planning to use Phase 3D after launch that it could be a few months before the bird is ready for normal operation. Several things will determine this time frame, including orbit parameters (such as the work that will be needed to slowly nudge P3D into its final elliptical orbit). Peter added,

"satellite operators worldwide can rest assured that every effort will be made to initiate operations at the first possible opportunity consistent with flight operations."

Three New Satellites Successfully Launched.

Three Amateur Radio satellites were launched on September 26, 2000 aboard a converted Soviet ballistic missile. The launch took place from the Baikonur Cosmodrome, placing SaudiSat-1A, SaudiSat-1B and TungSat-1 into low Earth orbit. Reports from the command stations indicate that all is well with these satellites and their commissioning is proceeding normally. SaudiSat 1A and 1B will operate as 9600 baud digital store-and-forward systems as well as having analog FM repeater mode capability. These first ham satellites from the Kingdom of Saudi Arabia were built by the Space Research Institute at the King Abdulaziz City for Science and Technology. AMSAT-NA's Jim White, WD0E, reports that both satellites have been turned on and are running initial housekeeping tasks. The downlink

frequencies are as follows:

SAUDISAT-1A 437.075 MHz

SAUDISAT-1B 436.775 MHz

TiungSat-1 is Malaysia's first micro-satellite and in addition to commercial land and weather imaging payloads will offer FM and FSK Amateur Radio communication. Chris Jackson, G7UPN, reports TiungSat-1 transmitted "excellent telemetry showing that the spacecraft was in good health. By next month we should have complete details on these new birds.

ARRIS News

The ARISS initial station gear is now temporarily stowed aboard the Functional Cargo Block module of ISS.

The initial station will use an existing antenna that will be adapted to support 2-metre FM voice and packet. The ARISS equipment will get a more-permanent home aboard the Service Module in 2001, along with VHF and UHF antennas. Plans call for amateur TV, both slow scan and fast scan ATV, a digipeater and relay stations. Planning for the deployment and use of the ham system aboard ISS has been an international effort coordinated by NASA's Goddard Space Flight Centre. The effort began in 1996 with the formation of the Amateur Radio International Space Station organisation. ARISS is made up of delegates from major national Amateur Radio

organisations, including AMSAT. All previous amateur radio stations aboard MIR and the Space Shuttle have been secondary installations, often using less than optimal antennas which were sometimes partially shaded from Earth. This will be a planned installation having the complete blessing of the ISS authorities from the beginning. We should expect big things from ARISS when the station is completed in a year or two. Our thanks are due to the ARISS team for a job well done, not only in the planning and building of the station but perhaps more importantly in the original and on-going negotiations with the ISS authorities.



News from the Moorabbin & District Radio Club

MDRC displays amateur radio at Hobby Show

The MDRC mounted another display of amateur radio at last month's St Kilda Hobby Show. On show were slow-scan television, PSK-31, satellite operation, QRP equipment, Morse code and two metres FM. HF was not used due to the extreme noise at the site. However contacts were made on VHF/UHF FM and SSTV. The use of a video camera made it possible for us to record pictures and transmit them over the air. This was particularly popular with younger visitors. PSK-31 was demonstrated by running a tape recording of 14 MHz signals into a soundcard-equipped computer to decode the transmitted text. The Morse key and oscillator also got plenty of presses.

An interesting observation is the large number of amateur visitors to the stand. Many were now inactive. It seems that as well as encouraging newcomers to radio, a major role for public displays is to re-kindle interest amongst existing licensees.

MDRC members present included VK3CAT, VK3JED, VK3XOR, VK3YE, VK3CEA, VK3GHK, VK3JEG and VK3KRO. Many other amateurs called

in to lend support during the day. The MDRC has run a stall for three of the four Hobby Shows held.

Club members try PSK-31

Several MDRC members have been experimenting with PSK-31, following a talk and demonstration at our August meeting. PSK-31 is a narrow-bandwidth digital mode similar to RTTY, but provides better results with weak signals. WinPSK software and a simple link between a soundcard-equipped computer and an SSB transceiver is all that's required to get on the mode. A comprehensive article on PSK-31 appeared in *Amateur Radio* for March 2000.

Rapid growth for APC News

The MDRC's weekly *APC News* service continues to grow rapidly, with more frequencies added in the last two months. 1.843 MHz AM commenced in late August, with relays via the VK3RHF 29.640/438.750 MHz crossband repeater being added in September.

APC News bulletins can be heard 8pm Wednesdays on the following frequencies:

- 1.843 MHz AM via VK3YE/VK3TPJ
- 3.565 MHz LSB via VK3JEG
- 29.640 MHz FM via VK3RHF
- 53.575 MHz FM via VK3GRL and VK3RDD
- 146.550 MHz FM via VK3GK/VK3JNB
- 438.750 MHz FM via VK3RHF

Bulletins can also be heard live on the Internet via URL <http://www.qsl.net/vk3jed/repeater.html>. Callbacks are held after all these transmissions. Listeners can also call our listener feedback line on 9544 9545 after the bulletin.

Peter Parker VK3YE
Publicity Officer
Moorabbin & District Radio Club
parkerp@alphalink.com.au
(03) 9569 6751

Redcliffe ARC Competitions

The Redcliffe Radio Club Construction Competition had two entries so they each got a prize of a DSE voucher. They were Don Lainge with a CW Oscillator and Laurie Pritchard with an RF probe.

The closing date for December entries is December 4.

Kevin VK4AKI Media Liaison



VK3WWW Jack Bramham

Email: vk3www@alphalink.com.au

Phone: +61 3 98732459 Fax: +61 3

94281589 Mobile: +61 0408027005

Nanjing hosts 10th World ARDF championships

Many of you may be aware that the WIA had a team competing in the 10th World ARDF championships held in Nanjing China from October 13-18. I know I promised a technical column this month, but I feel it would be better to let Bruce VK3TJN take over and describe the international event. Bruce has been E-mailing a daily report and I may have to edit out some sections but I am sure you will find what is left interesting.

Day 1. Arrival Day.

Bruce here from the Australian ARDF team in China. If you'd like to see future instalments of this bulletin, I'll ask you to subscribe to the melb-ardf for the duration (only this first posting will go to foxlist). This is because it is likely to be a very biased account of events, with dollops of parochialism, so I'm now going to subject everyone to it if they don't want to! You can subscribe to melb-ardf by sending message to majordomo@planet.net.au (with the body containing) subscribe melb-ardf. There will be pictures too! They will be uploaded to a web-site somewhere and the reports will point at them. Coming soon.

If you'd like to see future instalments of this bulletin, I'll ask you to subscribe to the "melb-ardf" for the duration (only this first posting will go to foxlist). This is because it is likely to be a very biased account of events, with dollops of parochialism, so I'm not going to subject everyone to it if they don't want to! You can subscribe to "melb-ardf" by sending a message to majordomo@planet.net.au (with the body containing "subscribe melb-ardf"). There will be pictures too! They will be uploaded to a web-site somewhere and the reports will point at them. Coming soon!

Anyway, on with the story; I have just got back from the team-leaders meeting. Australia is first alphabetically so I was first to pick a number out of a paper bag to determine our team start positions for the 2m event. It also meant I was last (had no choice!) for the 80m competition draw. We got 8 and 18 respectively. This doesn't mean a great deal at the end of the day since it only determines the start group for the first competitor of a country. The others are spread through the field. By

the way, there are 26 countries in this world competition. Only the USA team didn't seem to be at full strength, still missing their team leader Dale and some others. There are varying numbers of competitors for each country. We have only a team of 3 in the Senior (Open division 18-40 years). They are Bryan VK3YNG, Adam VK3HDF and myself. Some of you may recall my mention of Kurt, from Belgium, in my previous missives from Korea. Well it turns out I'm rooming with Kurt.

Today it was warm, with occasional rain. We travelled by Bus from Shanghai to Nanjing, a distance of about 400km also on the bus were Yugoslavians, Bulgarians and some of the US team. There will be some photos later, but one thing becomes obvious as you travel: you never really get out in what we'd call the country. Near Shanghai it is dead flat, and only late in the journey did we start to see some hills which surround Nanjing. There is almost always a building (usually a block of flats) to be seen, and usually a continuous row. Otherwise there are rice fields, canals and dams and occasional other crops. Very little ground is left to waste. The Hotel in Nanjing is excellent, and after some teething troubles we now have permanent Ethernet (hey this is better than at home!).

After our arrival here we went out for what turned out to be quite a long walk around the nearby lake. There is an old city wall which circled old Nanjing which borders the lake (see photo soon - :) Caught up with some friends from Korea and Townsville. At the meeting we were shown the electronic tagging system they will be using for the ARDF events. Each competitor has to carry a Smart Card around and insert in the reader when they

find a transmitter. The times are stored on the card. They aren't too worried about rain, but point out sweat might cause problems with the reader. Hmmm, not quite up to Sport-Ident standards, but we'll see how it goes! Tomorrow we have what is called a Model event. It isn't really, since it will be on completely different terrain to the actual events, but it does give a chance to make sure our gear still works. They have scheduled a team leaders meeting at the same time!! Obviously there aren't too many team leaders like myself who also compete, so I hope there will still be enough time after for me to test my gear.

Day 2. Practice and Opening Ceremony.

Well this morning was a relaxed start; Adam and Bryan were able to do a decent amount of 2m and 80m practice. I was held up in the team leaders meeting (only some of the team leaders actually compete as well) with interminable questions which did seem to go on for hours. I was able to establish that the distances between transmitters will be adhered to in this comp. 750m from the start minimum, and 400m between minimum. What seems a long time limit of 130 minutes has been set. Might be a long course!

Now I did promise pictures. Well I do have them all ready to upload, but for some reason I seem to be having ftp difficulties so not tonight. This afternoon I had a chance to at least test my equipment worked on two transmitters just outside the hotel. After that it was all into a huge queue of buses (22 buses at least) to get to the Opening Ceremony which was on the island in the middle of the lake outside the hotel. There are over 350 competitors at the world

championships from 26 countries, plus team leaders, trainers, referees and organisers. This is a BIG event to stage. I have some good photos of the amazing dancers and acrobats. Some so young (almost pre-school) it seems hard to imagine it is possible. You will just have to wait for the pictures I'm afraid. (If I can't get fit to work, I might look for a kind volunteer to put them up for me somewhere, tell me where, and I'll send them by email. ...anyone?). As far as I know the link from here is fast. The team leaders were presented with floral arrangements and the whole thing was like a mini-Olympic opening ceremony (complete with marching band). This evening after some preparation for the event tomorrow, I had to go to the team leaders banquet (the others had a normal plebeian banquet -> Actually the hotel food is very good.) Team Leaders banquet was a lavish affair with that evil rice wine, bottomless drinks and a seemingly endless processions of delicacies. Very nice indeed. I have got to know Maurice, the Belgium team leader quite well (you see, Belgium is next from Australia in the alphabet!) since we end up sitting next to each other. Also a university student sat at our table to help translate. She is studying languages, in particular English, so with so many different English accents it would be a good test of her new abilities. Anyway, I must go to bed. Don't want to disturb Kurt too much.

Day 3. 2m Competition.

Today was a 5am wake up (groan), breakfast & hopefully grabbing all the gear we needed & out to the buses. Off we go in a mammoth procession, complete with Police escort and traffic priority provided. There were police holding off traffic, even on a freeway at one point so we could do a strange exit up an entrance lane! All very impressive, and at the same time the scale of it all a bit unnerving. Off the freeways we headed down bumpy roads through small Chinese villages about 1.5 hours out of Nanjing (don't ask me where!). The villagers were all out in force to witness the spectacle of the bus cavalcade. There were even ARDF posters plastered to some of the walls. We arrived at the destination out behind yet another small village. All the local children were out to see the foreigners. Bryan was first out with the 6th group. Groups are let out at 5 minute intervals. I had about a 2 hour wait till I went out,

Adam went last about an hour or so later. The sun came out today and it ended up being quite warm and clear. Lucky I happened to pop the sunscreen in my bag. I was in the same group as my Belgium team leader friend, Maurice. I was number 001, but he lucked James Bond - 007.

The course itself was quite long and hilly. There were areas where it was very slow movement, as well as areas of closely spaced plantation that it was possible to move through reasonably quickly and a number of tracks. Some areas of the map were a bit inaccurate with the location of tracks (some new tracks were there, and of some old tracks shown there was simply no sign and had to be bush-bashed. Every 2m TX was atop a significant hill. Sometimes you could tell the transmitter wasn't far away, but to get there was quite a different matter! Unfortunately I did the transmitters in a non-ideal order, having to backtrack at the end to get one, but in retrospect it wasn't too bad a route choice. It just took me a while. I had about 15 minutes left of the 130, and I decided to abort getting that last transmitter, and turned around to head for the finish. Later I found out I was less than 200m from the transmitter, but at the time I didn't feel I could risk being late (which means instant disqualification). I had some trouble with my smart card at the readers, especially at the last two checkpoints. I personally would not recommend this system! Peter VK3ZPF has kindly offered to put the pictures on his website to view them try the following address: <http://www.qsl.net/vk3zpf/china/day1.htm> <http://www.qsl.net/vk3zpf/china/day2.htm>, and so on.

Day 4 Rest Day and Local Tours.

Well late last night we got the official results for the 2m competition, and we're quite happy with them! The full results will probably appear on <http://www.crsa.org.cn> at some stage. Here's some highlights: Team Australia 9th in Senior division (18-40 years). China 1st. What is of note is we beat Japan, Kazakhstan, Korea, USA (Yay!), France and Yugoslavia. If we count only the truly 'ARDF teams (those who actually have Amateur call signs, we came 3rd!! In individual results. The best China time was 57 minutes for 5 TXs. Nikolay from Kazakhstan was 2nd with 57 mins. Adam was 15th with 94 mins (5TX). I was 32nd

with 115mins (4TX) and Bryan 39 with 125mins (3TX). Adam was thrilled he beat the tall Chinese guy from Korea. Kurt (Belgium) was 38th with 113mins (3TX). Alex (Kazakhstan) came 7th in the Old Timers with 74 mins(40-55 years) Best US result was Rob Cooley (an orienteer) who managed 9th in Vets. Some of the comments we have heard about the course: It was long! Many of the tracks weren't there. You had to read the map and keep track of where you were in order to have a chance of finishing reasonably. It was a good 'navigational' course. Map detail was lacking

Some titbits of info:

The New Century Hotel turns out to be fully owned by the Phone Company that is sponsoring the event. It is 5 star and otherwise would be costing a fortune. Speaking to a Yugoslavian student who is competing: He was born in Slovenia, but had to move to Yugoslavia in 1991 due to the war because his father was born Yugoslavian. However, the Croatian, Slovenian and Yugoslavian teams are all good friends. They had to get individual sponsorship in order to come here.

Tour day was today The Mausoleum is what you would expect...a lot of stairs and not much when you get to the top. There was one amazing event today as part of the afternoon tour, we were taken over the Nanjing Bridge across the ChangChang (Yankze) river. The bridge is over 1.5km long. Impressive as it was, it was not nearly as impressive as the lengths the organisation went to ensure smooth passage for the ARDF bus cavalcade. Basically, peak hour traffic was halted over the bridge for us to have exclusive access (we're talking like trying to block the Sydney Harbour Bridge here). We wound from one side of the road to the other, a line of about 15 buses with multiple police car escorts. Traffic was stopped in one direction or the other based on where we happened to be with other squads of police cars. Any cars getting in the way of our official speedy transit were blasted with the extremely serious horn on our bus (we happened to be in the lead bus behind the two police cars). This was amazing enough, but at the far end we left the highway, did an odd U turn in a nearby road, and then proceeded to do it all again back over the bridge in the other direction. I have some pictures of all this, but it doesn't really

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capture the amazement we felt about the whole operation. The bridge itself tended to be secondary, the police escort, with sirens blazing, then led us into the middle of downtown Nanjing, the whole caboodle into a pedestrian only zone, into the middle of the market for our dinner in a nearby restaurant.

Day 5. 80m Event and Closing Ceremony

Well today we had, of course, the 80m ARDF event. Again we had the amazing police escorted trip to a remote location. It rained, despite the fine weather forecast. Even so, the villagers lined the streets of the towns and villages as we drove through the misty rain. It seemed every village had a police car there to direct us through. They decided to extend the time limit to 140 minutes due to the rain. I have a picture of the competitors camped at the waiting area. Digital pictures are not allowed in the actual start area due to the risk of someone transmitting an image of the map to a competitor somehow. This is all taken pretty seriously at a World Championship.

Adam headed off first, and despite following a very strange and lengthy route managed a very credible 114 minutes and 26th place. An excellent effort in difficult conditions. Again this was a harder course than we've ever done before (including the 2m event 2 days ago!). Going down steep and muddy hills, you use the bamboo to slow you down, but in the process you shake the wet bamboo resulting in a mini deluge! I was next a couple of hours later (it's a long wait, but we chatted to the US and the Dutch team we were sharing a shelter with. Here's a brief description of my course: Headed out the Woman/Senior corridor to the West. 5 was ahead, 1 to the right, 2 the left and 3 & 4 up the top of the map somewhere. I was planning on doing 5, but after coming down the other side of the big hill around the start decided I was close to 1 and I should do it first. It was near a village in the middle of the map. Went to 5 next in the SW. Lost myself a bit on the map, so I was uncertain to within 100m of where it actually was. Next was #2 for me in the SE. Turned out to be well to the SE and here the tracks didn't do what I expected from the map, so I'm only vaguely aware of where this one was. Not good. Still, doing ok with approx. 1 hour for the first 3 transmitters. 3 and 4 were right up the northern end

of the map so a good long run. Did 4 pretty quickly considering (making up some time), and quickly followed by 3 in a blinding 10 minutes. Now is where things fall apart. I have over 20 minutes to get to the Finish, and it is only an easy 10 minute run away. I pop out on a North-South track and head South. It is a very crappy track, but it is on the map and it should get me to the finish quicker than the road which is harder to get to. I should have learnt from the 2m map inaccuracies, but soon the track became quite indistinct. I could not find a left turn I needed to take and gradually it started to head the wrong way. In an attempt to correct the problem I thought I'd just head through the bush Southwards. Bad Idea! It became impenetrable. It even took me quite a while to back out of the disaster. 10 minutes wasted. Only 7 minutes left. I head the only way I can, on the non-track (sort of a vague passage through jungle) which insisted on taking me West. I ended up on the side of the map, almost further from the Finish than I was at TX3. Time has run out. I walk dispirited back to the distant start. A whole hoard of school children had recently arrived at the Finish so I had to run down the finish to their cheers (too embarrassing to walk). Anyway, that was me, out. Bryan found 3. He didn't have time to get either of the other northern transmitters, but it was a good finish. The Australian team therefore didn't fare as well on the 80m hunt, Oh well!

Speaking to a Norwegian competitor I was encouraged to hear that he took exactly the route as me (4-3 Finish), but he had 30 minutes to throw away on the non-track, which he succeeded in doing in a very similar way to myself. He was also overtime. Team result was 15th out of 18, but we still beat Korea and Mongolia and the best time was 59 minutes from Czech Republic.

Tonight was the award ceremony and banquet (Quite a different affair from Korea). Surprisingly it was very informal and quite brief. Most teams chatted around the periphery during the prize giving. We had adequate gifts this time and of course the little Koalas and Kangaroos are always very well received. Tomorrow is departure day and individual tours start, I will be staying for a few extra days, but Adam and Bryan will fly home, 73 from Nanjing VK3TJN Bruce.



John Kelleher VK3DP, Federal Awards Officer

4 Brook Crescent, Box Hill South Vic 3128, (03) 9889 8393, email redtoo@rabbit.com.au

The Real Ladies of Amateur Radio

About this time each year, I find my thoughts turning to our precious YLs, the real Ladies of Amateur Radio. These thoughts are purely platonic, otherwise my better Half may have a few words to say. I respect that, because she has kept me on an even keel for nearly 50 years.

One of our best, in Gwen VK3DYL, has only one entity to go to Work All DX countries. I also found out that she is battery-operated these days!

Getting down to YL Awards, I think that I can do no better than to reproduce the awards Which were available in 1999.

AUSTRALIA - The ALARA Award.

VK and ZL contact 10 YL members of The Australian Ladies Amateur Radio Association. Contacts must include 5 VK call areas; others contact 5 in 4 call areas. Contacts on or after June 30 1975. Please, no repeater or net contacts! SWL OK. Endorsements for each additional 10 members. DX only 5. GCR list and fee of 7 Irc for Basic award. The fee for additional endorsements is A\$1.00. The ALARA Award Custodian is :-

Jean Shaw, 10 Huntingsfield Drive, Hoppers Crossing, Victoria 3029 Australia.

NEW ZEALAND - WARO Award.

General requirements : Contact ZL YL's on any mode or band from the same QTH. No Repeater or contest. GCR list and return postage for return to :-

Jeanne Gilchrist ZL4JG, 37 Roy Crescent, Concord, Dunedin 9006 New Zealand

HF ZL and VK work 12 WARO members, DX 6 Contacts from June 1 1969. Endorsement seals for ZL and VK for each additional 12 DX 6. Contacts with DX Members of WARO qualify for endorsements, but applications must contain at least 3 ZL contacts.

VHF: 10 VHF contacts with WARO members from Jan 1 1979. Endorsements for each additional 5 contacts.

SWL ZL and VK list 20. DX list 10; from Jan 1 1979. Endorsements for each additional 10 5 for DX

NZWARO Century Award.

Contact 100 NZWARO members (DX members included), from June 1 1987. All modes and bands, but each YL claimed must be a financial member at time of contact, and may be only counted once. Repeaters, nets and contests are OK. Fee is NZ\$2.00.

NZWARO Mountain Buttercup Award.

For contacts with licensed NZWARO members resident, visiting, mobile etc. in the 60 towns named in the official list (sase/irc from manager). All modes and bands, but must have been a financial member at time of contact, and within a 25 km radius of the center of the town named. Repeaters, nets, and contests are OK. Contacts after Jan 1 1989. 30 towns/contacts needed for basic certificate. Stickers for each 5 up to 60. Send SAE and return postage.

CANADA : CLARA Series Awards.

General requirements; GCR accepted. Apply to :-Cathy Hrischenko, VE3GJH, 56 Stockdale Crescent, Richmond Hill, Ontario L4C 3S9 Canada.

CLARA Certificate.

CLARA members work 12 YL in 6 Canadian call areas (limit 5 VE3) other YL or OM In Canada work 10 YL in 5 Canadian call areas (limit 4 VE3). DX stations including USA work 5 YL in 3 Canadian call areas (limit 2 VE3). All bands. Contacts after Sept 12 1972. Endorsements available. Fees : VE and USA \$3.00, all others \$4.00.

CLARA Family Certificate.

Families must reside in Canada. Work two or more members of the same family to get Family status. They need not reside at the same address. Contacts after Jan 1 1975. Log Sheets must show full names and relationships of contacts. You earn one point for the first member of the family, and two points for each additional member worked. It is Necessary to work 2 or more from the same family. 22 points are needed to

earn this Certificate. Endorsements for each additional 22 points. Fees : VE and USA \$3.00, Others \$4.00

CLARA Ten DX Contacts Certificate.

Work 10 YL in different countries from the approved DX countries list. Open to all YL and OM. Contacts after Jan 1 1990. Fee is \$2.00, and a copy of your extract log book.

YL-DXCC

Work YL in 100 different countries from the approved DX countries list. Open to all YL And OM. Endorsements available for each additional 10 YL countries. Fees: VE and USA \$3.00. all others \$4.00.

JAPAN Ladies Radio Society Series Awards.

General requirements : GCR list and 10 Irc fee is applicable for each award. Endorsement fee for YL-10 is 3 Irc for each group of 10 YL contacts. Member list is available from sponsor for SAE. Please note that fees for all of these awards may have risen since 1997.

YL - Alphabet Certificate.

Contact a minimum of 26 licensed YL operators. The last letter of their call signs must represent all 26 letters of the alphabet. No time limitations. Class A for contacts with JRLS members only. Class B for YL anywhere in the world including at least five Japanese YL for operators outside Japan. Applications to:-

Kazuko Isiguro JE2EWW, 59-7 Wakinosima -cho, 7 chome, Tajimi City, Gifu 507 Japan

YL-10 Certificate.

Requires 10 confirmed contacts with licensed YL operators world-wide, including at least one Japanese YL. Contacts after Jan 1 1953. Endorsement stickers for each group of 10, though contact with a Japanese YL is not required for endorsements. GCR list and fee of 10 Irc go to :-

Ayako Inagawa JE3LFH, 1-18-11-701 Minamihone, Nishi-ku, Osaka 550 Japan

YL-CW Certificate

For this award and the following 5 awards, GCR list and fee of 10 IRC go to:-

Nobuko Nishigori JA3UPR, Hirose-dai, Kaai-machi, Kitakatsuragi-gun, Nara-ken 636, Japan

YL-CW-AJD.

Contact a licensed YL in each of the 10 districts of Japan. (1 to 0).

YL-CW-WAJA.

Contact a licensed YL in each of the 43 Prefectures of Japan.

YL-CW-JCA.

Contacts with YLs in 10 different Cities in Japan. Endorsements for each group of contacts with 10 additional different Cities.

YL-CW-10 Certificate

10 contacts with different licensed YLs anywhere in the world. Endorsements for each group of 10 additional contacts.

YL-CW-Alphabet Certificate.

26 contacts with licensed YL operators world-wide. The last letter of their call signs must represent all 26 letters of the alphabet.

USA - YLRL Certificate.

General requirements: Contact YLs for a very interesting series of awards. No repeaters. All contacts must be made from the same country. Do not send cards, GCR is encouraged NO CHARGE for any of the certificates, but sufficient return postage for first-class mail Or a stamped legal-sized envelope must accompany the application. The

custodian for each award is shown with the appropriate rules.

DX-YL Award.

Available to licensed YL operators only for working 25 different YLs outside your own country after Apr 1 1958. USA and possessions are counted as separate countries as well as KH6 and KL7. All bands. Contacts do not have to be with 25 countries, just 25 Different DX YLs. GCR list alphabetically by operator's last name. Endorsements for each 10 additional DX YLs. Apply to :-

Phyllis Davis KA1JC, 5282 Boyle Terrace, Ft. Charlotte, FL. 33981. (Oct 10 to Jul 10), P.O. Box 1488, Presque Isle, ME. 04769 (Jul 10 to Oct 10)

Worked All Continents - YL.

Available to all licensed amateurs. Contact a YL operator in each of the six continents. Cross-band contacts are OK. No time restrictions. Apply to :-

Leanna Shaberly KB8RT, 2635 West Sunrise Drive, Phoenix AZ 85041, USA.

Worked All States - YL.

Available to all amateurs. Contact a licensed YL in each of the 50 USA States. DC may be counted for Maryland. No time or band limitations. GCR list alphabetically by State, and to include the YL's first name. Apply to :-

Richea Brigrance KU5L, RR2 Box 197, Booneville AR 72927, USA.

YL Century Club.

Available to all licensed amateurs. Contact 100 different YL amateurs. All bands. Contacts with YLs anywhere in

the world are recognized as long as the stations were operated by licensed women operators. GCR list arranged by last name of operator. Endorsements for each added 50 stations. Gold stickers awarded to applicants who worked their additional contacts from the same country, otherwise Silver stickers will be awarded. Apply to :-

Le Henderson KB6MXH, 857 Tamerack Lane, Sunnyvale CA 94086, USA.

YL-DXCC.

Available to all amateurs. Contact licensed YL operators from 100 countries as recognized by the ARRL DXCC list. All bands may be used, but no cross-band contacts. GCR list in order of DXCC countries list including the YL's name. Endorsements for each added 25 DX countries. Apply to :-

Marty Silver NY4H, 3118 Eton Road, Raleigh NC 27608, USA.

Lastly, and hot off the presses, one for everybody.

The Crimea Award.

Issued for contacting amateur radio operators from the Crimea. (UU,UT#J,EM#,EN#,EO#). It is open to licensed amateurs and SWLs. Cards are not required. For complete information please contact Rusty, UU2JQ at uu2jq@packet.crimea.ua

Good luck, and best 73 de John, VK3DP

Now at redtoo@rabbit.com.au



Raymond Harold Kilby VK7RK

Raymond was born in March 1918 and educated at Wellington Square and Launceston Junior Technical Schools. He was apprenticed to his father in the upholstery and bedding firm of H.J. Kilby in 1932. He saw war service for 5 years in Signals with AIF in Australia and New Guinea. He was discharged from the 33 Australian Heavy Wireless in 1946.

He married Jean May Robertson in 1942 and they had two sons Bruce and Terry Bruce unfortunately died in 1960.

Raymond's interest in radio developed in his teens and he obtained his Amateur

Radio Certificate in 1935. Following his war service he studied further on his own and obtained the Broadcast Operators Certificate in 1958 and then a First Class Commercial Certificate No 1862 7.1/58 which was upgraded to a Radio Commercial Operators General Certificate of Proficiency No T1 in 1977.

He took over his father's business in 1960 but his interest in things radio finally saw him close Kilby's Bedding and Upholstery and take a series of Radio Operator positions. He worked for Australian Offshore Services and AWA. He served on the following ships

Regional Endeavour, Nancy Heath, Brisbane Trader, Cape Hawke, Lake Macquarie, Mt Newman, Lady Jane, Lady Gay and Empress of Australia. He retired from AWA in 1983

Besides Radio he had a lifetime interest in music and played piano and organ. He played in dance bands and for hotel entertainment.

Ray's key fell silent on 4th October 1999.

The WIA thanks his XYL Jean for the above details of his life.

73 Ray VK7RK, DE VK7AN and the WIA.

Contest Calendar November 2000 – January 2001

Nov	1-7	HA QRP Contest	(CW)	
Nov	4/5	WIA Spring VHF-UHF Contest		(Oct 00)
Nov	4/5	Ukrainian DX Contest	(CW/SSB)	
Nov	5	High Speed CW Club Contest		
Nov	10-12	Japan Int. DX Contest	(SSB)	
Nov	11/12	WAE RTTY Contest		
Nov	11	ALARA Contest	(CW/SSB)	(Oct 00)
Nov	11/12	OK/OM DX Contest	(CW)	
Nov	18/19	LZ DX Contest	(CW)	
Nov	25/26	CQ WW DX Contest	(CW)	
Nov	25/26	CQ WW SWL Challenge		
Dec	2/3	TARA RTTY Sprint		
Dec	2/3	EA DX Contest	(CW)	
Dec	9/10	ARRL 10 Metres Contest	(CW/SSB)	
Dec	16	OK DX RTTY Contest		
Dec	16/17	Croatian CW Contest		
Dec	16/17	Stew Perry 160 metres Distance Challenge	(CW)	
Dec	16/17	International Naval Contest	(CW/SSB)	
Dec	17	RAC Canada Contest	(CW/SSB)	
Dec	26	Ross Hull Memorial VHF-UHF Contest (to Jan 14)		
Dec	30/31	Original QRP Contest	(CW)	
Dec	31/1	15 th Internet CW Sprint	(CW)	
Jan	12-14	Japan International DX Contest Low-bands		
Jan	14	Ross Hull Memorial Contest last day		

Thanks this month to VK5OV ZL2ST ZL1BVK VK4EJ

Results NZART Memorial Contest 2000

VKs only (Call\mode\score)

VK5EMI Mixed 133

VK3JWZ Phone 618

VK7JAB Phone 218

VK7LUV Phone 103

VK3VP CW 287

VK3DID CW 141

Congratulations to Bruce VKK3JWZ who receives an award as highest VK scorer.

Results of AUSTRALASIAN SPRINTS 2000.

From David Box VK5OV, Contest Manager
Entries for the fifteenth (and probably final) series of the Australasian Sprints totalled 8 in the CW Section and 20, including one multi-operator (club)

station and two SWLs, in the Phone Section. These figures are a slight improvement on last year's and are a rather higher proportion than usual of the callsigns recorded on the logs received. Whether this means that the Sprints continue next year will be decided by the AHARS committee but it must be doubtful. I had hoped that some of the familiar callsigns from past Sprints, both from VK and ZL (and indeed a couple of P2s) might have made a final sentimental dash, but it was not to be. The scores in both sections were unusually low and were apparently hard work to achieve; but those who commented also noted that the Sprints were good fun and that it would be a shame to see them go.

The Adelaide Hills Amateur Radio

Society and the SA/NT Division of the WIA congratulate the overall winners, Karol Nad VK2BQQ in the CW Section and John McRae VK5PO, for the second successive year, in the Phone Section. Congratulations also to the leading scorers in the individual call areas and to Ian McGovern of Parkes, NSW, who was again the leading SWL. Lists of the logs submitted with the scores achieved are shown below. Certificate winners are indicated by asterisks.

AHARS thanks the many operators who have taken part in one or more of the Sprints over the last 15 years and who sent in logs, regardless of the size of their scores. Without their support there would have been no Sprints, and to these amateurs we wish "Good Contesting".

CW SPRINT

VK2BQQ 20**
 VK3YE 6*
 VK4UW 9*
 VK5PO 17*
 VK5ET 3
 VK5EMI 2
 ZL1ALZ 15*
 ZL1AIH 5

VK7LUV 26*
 VK7JGD 25
 VK7JAB 5
 ZL1ALZ 24*
 ZL1BVK 21
 I. McGovern 50*
 J. Zinkler 14

VK3DID SO CW 15 3rd VK
 VK3YE SO CW 4
 VK2HDH SWL PH 22 1st VK
 C Elliott SWL PH 12 2nd VK

Results ARRL 10 Metres Contest 1999

from Bernie VK4EJ

PHONE SPRINT**Multi-Op:-**

VK5SR/P 27*

Single-Op:-

VK3YE 9*
 VK5PO 36**
 VK5KCC 31
 VK5YX 30
 VK5UJ 30
 VK5OV 28
 VK5NOS 21
 VK5XY 20
 VK5TY 19
 VK5DUG 18
 VK5EMI 14
 VK5ET 11

Results Waitakere Sprints 2000

(VKs only - Call\cat\mode\score)

VK5NJ	SO	PH	57	Winner
VK5SR	CLUB	PH	532nd	VK
VK4NEF	SO	PH	46	3rd VK
VK4SN	SO	PH	41	=4th VK
VK7JGD	SO	PH	41	=4th VK
VK1MOJ	SO	PH	39	
VK3JWS	SO	PH	38	
VK3SB	SO	PH	21	
VK7LUV	SO	PH	21	
VK5XY	SO	PH	19	
VK7JAB	SO	PH	18	
VK3YE	SO	PH	8	
VK7LUV/				
VK7JAB	DUAL	PH	39	1st VK
VK4SN	SO	CW	31	1st VK
VK5NJ	SO	CW	24	2nd VK

(Call\score)

VK4EMM 1,400,400
 VK2APK 510,752
 VK8AV 401,568
 VK4UC 1,096,714
 VK5GN 803,250
 VK4EJ 192,284
 VK2ARJ 163,680
 VK4NEF 127,298
 VK5EMI 56
 VK2LA 289,012
 VK4TT 135,836
 VK4ICU 53,560
 VK4XW 1,904
 VK4DZ 1,200,960
 (Club VK4NM/SN)

WAE RTTY CONTEST

11/12 November, 2000

0000Z Sat - 0000Z Sun

Only 36 hours of operation are permitted and breaks may be taken in one period or no more than three periods.

BANDS: 80 - 10 m with minimum time on band of 15 minutes.

MODE: Baudot (RTTY) only.

CATEGORIES: Single operator all bands; multi-operator single tx; SWL. DX cluster support is permitted.

EXCHANGE: RS(T) plus serial number starting at 001. Stations may be worked once only per band.

SCORE one point for each QSO and one point for each QTC reported to another station not on your continent.

MULTIPLIER is each DXCC/WAE country counted once only per band.

MULTIPLIER BONUS: each multiplier on 80 m is multiplied by 4; on 40 m by three and on 20/15/10 by two.

FINAL SCORE is total QSO + QTC points X total multipliers. Use SEPARATE LOGS for each band, showing band changes and duplicates. Supply DUPE SHEET if more than 100 QSOs on any band.

SEND LOGS by 15 December, 2000, to: WAEDC Contest Committee, Duererrring 7, PO Box 1126, D-74370 Serheim, Germany

Logs may be sent by e-mail to: <waedc@compuserve.com> in plain ASCII with Summary Sheet

CQ WW DX Contest

SSB: 28/29 October 2000

CW: 25/26 November 2000

0000Z Sat - 2400Z Sun

OBJECT: For amateurs around the world to contact other amateurs in as many zones and countries as possible.

BANDS: 160 - 10 metres (no WARC).

CATEGORIES: Single operator single band/multi-band; high power (100w +); low power (100w -); QRP (max 5 w o/p); assisted (full power + use of spotting nets permitted). Multi-operator all bands single TX (only one TX and one band permitted during any 10 minute period from first QSO on that band); multi-tx but only one signal per band.

EXCHANGE: RS(T) plus CQ zone.

MULTIPLIERS: Each different zone and country contacted per band. WAZ, DXCC and WAE lists, WAC boundaries are standards. Stations may contact their own country and zone for multiplier credit but zero points.

SCORE three points for contacts between stations on different continents.

FINAL SCORE is total QSO points X zone and country multipliers.

LOGS must show time UTC; exchanges; multiplier FIRST time worked on each band; checked for duplicates and correct scores. Separate log for each band.

SUMMARY SHEET should show name and address in block letters; all scoring information; category and signed declaration. All entrants should submit cross-check sheets.

SEND LOGS on paper or 3.5 inch disk in CT.BIN or N6TR.DAT format by 1 December (SSB) or 15 January (CW) to: CQ Magazine, 76 North Broadway, Hicksville, NY 11801, USA. Various AWARDS available

NOTE: Contest Organisers please send any material you wish to be published to the Editor.

Ross Hull Memorial VHF-UHF Contest 2000 — 2001

John Martin (VK3KWA), contest manager

The next Ross Hull Contest will be held between December 26 and January 14. The changes to the scoring system in last year's contest resulted in increased activity, so these arrangements will remain the same this year.

In recent years, 6 metre scores have been only a small fraction of what can be obtained on 2 metres and higher bands. This imbalance has been reduced by an adjustment to the 6 metre scoring. However the main source of big scores will still be 2 metres.

The contest has two sections - best seven days and best two days. This means that you can fit your contest activity around other commitments. But please try to get on the air for as many days as possible! You may only need seven good scoring days, but your preferred days may not coincide with someone else's. And good propagation can often come along when you don't expect it.

The Contest

The WIA maintains a perpetual trophy in honour of the late Ross A. Hull and his pioneering achievements in VHF and UHF operation. The name of each year's contest winner is engraved on the trophy, and other awards may be made in the various divisions of the contest. The contest is open to all amateurs.

Duration

0000 UTC Tuesday, December 26, 2000 to 2400 UTC Sunday January 14, 2001. In Eastern Summer Time, that is 11 a.m. on December 26 to 11 a.m. on January 15.

Sections

A. Best 7 UTC days as nominated by the entrant.

B. Best two UTC days.

Entrants may submit logs for either section. The nominated UTC days need not be consecutive. The overall winner will be the top scorer in Section A. If the overall winner has also entered Section B, his/her log will be excluded from Section B.

General Rules

One callsign and one operator per station. One contact per station per band per UTC day. Repeater, satellite and crossband contacts are not permitted. No contest operation below 50.150 MHz. Band plan calling frequencies should not be used for contest calls, exchanges, or liaison. A contest calling frequency

of 150 on each band is suggested. All rulings of the contest manager will be accepted as final.

Penalties

Minor errors in distance estimates or calculations may be corrected and the score adjusted. Contacts made on calling frequencies will be credited if the entrant provides a satisfactory explanation of why it was not practical to move to another frequency. Otherwise such contacts will be disallowed. Persistent unnecessary use of calling frequencies or false log entries will lead to disqualification.

Contest Exchange

RS (or RST) reports plus a serial number. Serial numbers need not be consecutive. For difficult propagation modes such as meteor scatter, exchange of a total of two digits is sufficient for a valid contact.

Scoring

For 2 metres and above, one point per 100 km or part thereof (i.e. up to 99 km: 1 point, 100 - 199 km: 2 points, etc).

For 6 metres only, contacts below 1000 km: as above. Contacts from 1000 km to 2400 km, 2 points regardless of distance. Contacts over 2400 km, 20 points regardless of distance.

The band multipliers are:

6 m 2 m 70 cm 23 cm Higher
x 1 x 3 x 5 x 8 x 10

Logs

Logs must cover the full contest period and contain the following for each contact

- Date and UTC time.
- Station location (if operating portable).
- Specific FREQUENCY (not just band) and callsign of station worked
- Approximate location or grid locator of station worked.
- Reports and serial numbers sent and received.
- Estimated distance worked and points claimed.

Separate scoring columns for each band would be helpful.

Cover sheet

Logs must be supplied with a cover sheet containing:

- Operator's callsign, name and address.
- Station location (if different from the postal address).
- Section(s) entered, and a list of the UTC days to be scored.
- A scoring table set out as the example below.
- A signed declaration that the station has been operated in accordance with the rules and spirit of the contest, and that the contest manager's ruling will be accepted as final.

Deadline

Paper logs may be posted to the Manager, Ross Hull Contest, 3 Vernal Avenue, Mitcham, Vic 3132. Electronic logs can be e-mailed to jmartin@xcel.net.au. The following formats are acceptable: ASCII text, Office 97 RTF, DOC, XLS, MDB, or PUB, or Works 99 WKS. If you use Office 2000, please save the files in Office 97 format.

Logs must be received by Friday, February 9, 2001. Early logs would be appreciated.

Sample Scoring Table

Band	6 m	2 m	70 cm	etc
Score	xxxx	xxxx	xxxx	xxxx
Band Mult.	x 1	x 3	x 5	x x
Total	xxxxx +	xxxxx +	xxxxx +	xxxxx +
xxxxx = xxxxxx (GRAND TOTAL)				

Note on Calculating Distances

Absolute accuracy is not required. All you need to know is whether the other station is above or below the nearest multiple of 100 km. An easy method is to use a compass to draw 100 km circles around your location on a map. Better estimates can be made from six-digit Maidenhead locators, using a computer program that is available from the contest manager.



DX Notes

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email Vt3wac@aol.com

I have just spent a very enjoyable couple of evenings operating on the 10 metre band. Just a few months ago I was lamenting the fact that 10m was not living up to its reputation from previous sunspot peaks. But I must now rescind those comments.

In the space of just a few hours, on both nights, I worked just about every country in Europe, both on CW and SSB. Signals were solid 59(9) on just about every QSO. Europe may not be 'rare' DX, but distance wise it is about as far as you can get from Australia. Personally, I enjoy working long distance DX, this is what amateur radio is to me, talking to others in far off countries. If the country happens to be a 'rare' and sought after one than all the better. A quick check on the 12 metre band also revealed large numbers of European stations all happily exchanging RST, name and QTH with Asian and some Australian stations. Normally 12m is rather a quiet band, but as with 10m, the coming of the summer months and the longer daylight hours will perhaps encourage more VK stations to get on the band and work some DX. Hope to hear you on the bands.

The DX

3B8, Mauritius. Look for DL7DF and DL7BO to be active from the 3rd to the 17th of November. No callsigns were mentioned, but they will operate from 3B8 with one station, a beam and a vertical for 80 and 160m. QSL via the German QSL bureau DARC to DL7DF or direct to: Sigi Presch, DL7DF, Wilhelmsmuehlenweg 123, D-12621 Berlin, Germany. [TNX OPDX]

3W, Vietnam. "The 59(9) DX Report" reports that Hans, WA1LWS, is planning to be active from here between the 9th and the 26th of November. This will include the CQ WW CW Contest. He has applied to operate on 80, 40, 20, 15 and 10 metres. However, Hans says that 80 and 40 metre operation may

be doubtful. He operates exclusively on CW. [TNX WA1LWS. The 59(9) DX Report and OPDX]

5A Libya. Vladimir, UY5ZZ advises us that George, UY0MF will be operating as UY0MF/5A from near Tripoli "during 2000". George operates on 17 and 15 metres only. QSL via UX5MZ. [TNX 425 DX News]

5B Cyprus. Dez, G0DEZ will be in Cyprus for the next three years until 2003. He hopes to obtain 5B4 and ZC4 licences very soon, but for now he is 5B4/G0DEZ. QSL via G0DEZ whose correct address is Dez Watson, 12 Chadswell Heights, Lichfield, Staffs WS13 6BH, England. [TNX 5B4/G0DEZ and 425 DX News]

5N, Nigeria. Bogdan, 5N3CPR, operates quite a bit on 17 metres CW. He is usually active between 2200 and 0100z around or just below 17080 kHz. He will be heading back to Poland soon for "time off", but will return to Nigeria and resume his 5N3CPR operation. He is running a FT-100 that he finds convenient to carry on airplanes and uses a half-sloper antenna. His home call and QSL route is SP5CPR. [TNX 5N3CPR and 425 DX News]

A3, Tonga Island (Fiji). Hrane/YT1AD and Dragan/Z32AU are active as A35AD and A35AU until the 28th of October. After this time they will be operating as YJ0AD and YJ0AU until the 5th of November. They will return to Fiji to be active as 3D2AD and 3D2AU from the 5th to the 10th of November. Activity will be on CW and SSB on all HF bands including 6 metres. QSL via YT1AD and Z32AU. [TNX OPDX]

D4, Cape Verde Islands. Jose, EA8EE, plans to be active from the 6th to the 12th of November signing D44DX. Jose will also be active on 6m. More details to follow. [TNX The 59(9) DX Report]

VK0, Macquarie Island. The supply vessel "Polar Bird" is due at Macquarie Island on 7 November for the annual re-supply of the station & departs for Casey Station (Wilkes Land, Antarctica) on the 12th of November. Alan, VK0MM will therefore be permanently QRT from 12th of November onwards. Alan does mention, however, that there may be some activity as VK0LD from Casey Station. QSL route will be announced at the end of 2000. QRV times for VK0MM are available at <http://www.geocities.com/vk0ld/1.html> [TNX 425 DX News]

ZL8, Kermadec Island. Jacky, ZL3CW (F2CW) reports he will operate as either ZL8CW or ZD8CW from Kermadec between the 2nd and 15th of November. If you want to contact him before departure to line up a sched or whatever his e-mail address is zl3cw@i4free.co.nz [TNX ZL3CW and 425 DX News]

IOTA Activity

(AF-073) 3V.

The TS7N activity for the Kerkenah Islands (AF-073) is confirmed to take place between the 15th and the 30th of November. A team of 12 German amateurs, plus JH4RHF, I2DLS and IT9ESZ will operate on all bands, including 6 metres, and on all modes. They will participate in the CQ WW DX CW Contest (Multi-Single). QSL via DL6BCF (Britt Koester, Putzstr. 9, 45144

Essen, Germany). The web site for the operation is at <http://qsy.to/ts7n> [TNX DJ7IK and 425 DX News]

AS-049.

Takeshi, J13DST, will activate the Takara Islands (Kuchinoshima Tosima-Mura, Kagoshima-Gun, Kagoshima, JAPAN) as J13DST/8. Activity will be on 17/15/12/10/6 metres. QSL via the JARL Bureau (BUREAU is Best) or direct to (Please don't send \$\$\$) Takeshi "TAKE" Funaki, 2-18-26 Hannan-cho, Abeno-ku Osaka-city, OSAKA 545-0021 JAPAN. [TNX OPDX]

EU-003.

A group under the leadership of Mat, JW5NM, is planning a trip to Axeloya in the Svalbard Archipelago. This is an extremely rare IOTA entity because most of the area is off limits due to environmental concerns. Because it is so remote an expedition to this area will be expensive so the team is looking for some financial support for this venture. Send E-mails to Rag (LA5HE, OZ8RO, JW5HE) at: la5he@yahoo.no [TNX JW5NM and OPDX]

OC-035.

YJ, VANUATU. The Prairie DX Group is pleased to announce their 2nd Expedition to take place between the 18th and 28th of November, from Vanuatu and Efate Island (OC-035). They will be operating at least two stations around the clock and possibly more on 160-6 metres. Modes will be SSB, CW, RTTY, SSTV and PSK31. During the DXpedition, they are planning a sub-trip to one or more of the rarer YJ IOTA's. In addition to operating from the other islands, they will be participating in the CQ World Wide CW Contest from Vanuatu. The six members of the traveling team are: Rick/KF9ZZ, Todd/W9YK, Fred/KF9YL, Mike/N9WM, Bill/W9LVN and Tim/KB9QYL. As in their previous DXpedition (FP/N9PD September 1998), one of their main goals is to give every amateur the opportunity of working them at least once (and hopefully more often) The QSL route is via N9PD direct (The Prairie DX Group, 1206 Somerset Ave., Deerfield, IL 60035 USA) or via bureau Please include SASE with postage, IRC or greenstamp. Direct QSL cards received without return postage will be returned via bureau. For further info, check the Web page at: <http://www.n9pd.com> Or send

E-mail to Rick, KF9ZZ at: kf9zz@arri.net [TNX The Prairie DX Group and OPDX]

AF-086.

D4, CAPE VERDE Manuel/EA8BYG and Jose/EA8EE will be active near the capital of Mindelo from the Island of Sao Vicente (IOTA AF-086) from the 1st to the 8th of November. They will actually be operating from the QTH of Carlos, D44AC, and will use his callsign. Their activity will be on all HF bands around the IOTA frequencies including 17m, 12m and VHF 50 MHz. The grid locator is HK76KM. Modes will be CW, SSB, RTTY, PSK31, HELI, STREAM, MT63, SSTV and PACTOR. Their equipment will be an IC-706 MKIIG, with vertical antenna and a directional antenna ASS to be assembled on a mast. They will also have a homemade dipole for 6 metres and a TS440 Kenwood. QSL via EA8URL (The Gran Canaria DX GROUP). [TNX OPDX News]

Special Events

HF0POL. Marek, SP3GVX/HF0POL sends us a brief description of his activity from King George Island, South Shetlands. He has been at Arctowski Base since December 1999 and will be there until December 2000. He has also operated as R1/HF0POL from Bellingshausen Base (from the 12th-13th of February and 4th-13th of August, 2000), as LU1ZI/HF0POL from Jubany Base (3rd-7th of June) and as KC4/HF0POL from Peter J. Lenie Base, aka Copacabana (21st-23rd of July). The QSL manager for all his QSOs is SP3WVL either direct or through the bureau. Marek reports both the following addresses for SP3WVL are correct: Tomasz Lipinski, ul. Wodna 7A/6PL, 69-100 Slubice Poland or Tomasz Lipinski, P.O. Box 78PL, 69-100 Slubice Poland. Marek was also active between December 1996 and December 1997, please note that cards for contacts made with HF0POL during this time frame should only be sent to SP3FYM. [TNX SP3GVX/HF0POL and 425 DX News]

A special event station from Poland, 3Z0MM, will be active until the 30th of November to celebrate the millennium of the historical meeting of Polish King Chrobry with German Emperor Otto III in Szprotawa. QSL via bureau or direct to SP3JHY: Jerzy Ryks, os.B.Chrobrego 3/IV/7, 67-300 Szprotawa, Poland. [TNX SP3JHY and OPDX]

Round up

DX HOLIDAY WEB SITE Kenny, K2KW, informs OPDX that he has just launched a new Web site called "DX Holiday". The goal of this site is to share information on DX operating locations, and DXpedition "how-to" information. He hopes the readers find it helpful, and he especially hopes they will contribute to it! Check out <http://pages.prodigy.net/k2kw/qthurl/> [TNX K2KW and OPDX]

New Israeli 6 metre beacon Arle, 4X6UO, informed the OPDX that a new 6m beacon is on the air with a temporary callsign and location. The frequency is 50.0802 MHz. The CW beacon text is "vvvvvvvvv 4Z5AY test 4X/4Z beacon located in Tel-Aviv km72jb now tx all the characters from memory abcdefghijklmnopqrstuvwxyz1234567890.7- / 15 seconds key down" For more info check the web page at http://www.iarc.org/~4z5ay/htmls/lea_tec.htm [TNX 4X6UO and OPDX]

Pirate operation. Someone who gives either KY6XT or KK6XT as a manager has been pirating AP2JZB's call, using CW, for the past four or five years. Please note that the genuine Bob, AP2JZB does not work CW and still has K2EWB as a QSL manager. [TNX AD5W and 425 DX News]

Another pirate alert. Marcos, LU7BQ, informs us that the station signing QOQ/LU7BQ on 20 CW is a definitely a pirate. He has operated using SSB only for about 40 years and has never gone to XQO. He is currently receiving a lot of QSLs and he is so sorry for the guys wasting their greenstamps and IRCs. [TNX OPDX]

And yet another pirate (I have had the dubious honour of working this one myself), Jean Michel, F6AJA, reports that a station signing 5R8O is very active and is stating that 5R8FL is his QSL Manager, but unfortunately 5R8FL knows nothing about this station.

Sources

Finally, again this month, special thanks go to the following people and organisations, AD5W, 4X6UO, K2KW, SP3JHY, SP3GVX/HF0POL, The Prairie DX Group, JW5NM, DJ7IK, ZL3CW, 5N3CFR, 5B4/GODEZ, WA1LWS, The OPDX Bulletin by KB8NW/OPDX/ BARF80, 425 DX News and Bernie W3UR & 'The Daily DX'

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All times are in UTC

6 Metres .. Ok who has the keys!!

Overall the Spring Equinox, just passed, has been a bit of a fizzer, maybe reinforcing that this cycle is still yet to perform properly. A lack of Extension propagation modes has kept most of the lower half of VK quiet and I suspect areas further up..

Don VK6HK reports ... "A good day in Perth yesterday, Wednesday 18th - Some log extracts... Band was open earlier than 0400Z but I was out with the XYL 0407Z KH7L, 0500 - 0615 JA's, 0626 HL1LTC, 0648 7M4BEP/5 (Alarming alternative JA prefix...), 0724 BY9AA, 0745 HL5XF (Hrd), 0748 DS2DKW (Hrd) (Another alternative for Korea.), 0832 4W6UB/B (Hrd), 0647 9V1UV, 0943 YB0AN (Hrd), 1052 EY8CQ, 1153 9M6BAA, 1219 VR2XMT, 1224 9M6BAA (Now 9+10)" ... Don VK6HK

Ron Graham VK4BRG reports ... "Some interesting 6m propagation 0054 to 0107 UTC on 18/9/2000 - commencing with a normal F2 opening to the San Diego area. Then I was called by K7CW in CN87 grid (Washington State). He had a pronounced and rapid auroral flutter on his signal. Some discussion took place and he said he had to beam East to work me. I asked if there was any aurora activity he was aware of and he replied that the aurora had been visible as far south as Nth. Washington State. Four other contacts took place with stations in that general area; as far north as VE7 and as far east as western Montana, all with the same flutter and with them beaming east."

"Immediately following, stations around the Colorado area were worked with what appeared normal F2. That propagation continued for another 20 minutes. I think the stations worked via the aurora were via F2 to somewhere in the US and this linked up with the auroral propagation at that end. I experienced a similar situation last cycle

with a KL7 in Alaska. We both tried various beam headings during that contact but he HAD to beam somewhere close to east to work me. I still remember him saying he was beaming to the Great Lakes area."

And on 25/10/2000 "Well, finally had a reasonable 6m opening to Europe last evening 25/10/00. 0640 YO4BCZ 4-2 KN45, 0703 UT5JCW 5-2 KN64, 0732 YO4FRJ/P 4-2, 0736 UT4IO 5-5 to 5-9 KN88, 0807 OH5CW 5-2, 0809 OH7KM 4-2, 0853 YL3GJ 5-7 KO26. Quite a long opening, and difficult operating conditions!! Wally, VK4DO, had a similar opening over a similar time period." ... Ron, VK4BRG

144 MHz and above

Rob VK3EK has been doing more than most to keep 144 & 432 MHz warm throughout Winter. He reports on activity ... "The 144.150 NET at 9.30 UTC of a Wednesday night it will be warming up in them out door shacks by now so we will be looking for you on the bands below is a list of stations heard or worked from VK3EK on Wednesday 27-09-00. VK3BDL 144.150 VK3YFM 144.150 VK3AXH 144.150 VK3AMH 144.150 VK3WRE 144.150 432.150 1296.150 VK3KAI 144.150 VK3KLO 144.150 432.150 1296.150 VK2MP 144.150 VK1ZQR 144.150 VK3TNW 144.150 VK3BRZ 432.150 VK3XLD 144.150 432.150 1296.150"

"Other contacts at various times ... 16-9-00 VK2ZAB 144.2 432.160 and heard 1296.1 VK2MP 144.2 432.150 22-9-00 VK1VP 144.2 VK12TWR 144.2 432.150 27-9-00 VK3ANP 432.150"

On 11/10/2000.... "It was good to see that the activity was about again last night (11/10). REX VK7MO/P Mt Wellington put southern VK7 up for grabs and congratulations to David, VK3XLD and CHAS VK3BRZ on the 2m and 70cm contacts good stuff. I worked Rex VK7MO/P at a sked time of 0915 UTC on 144.180 and also at later times

but didn't make it on 70cm. Other good contacts made from Bainsdale QF32te as follows VK3WRE 09.31 UTC on 144.150 5x3 with beam at Hobart 0932 UTC VK3AJN 144.150 5x6, 0937 UTC VK3BDL 144.150 5X9, 0938 UTC VK3DUT 5x9, 0943 UTC VK3BDL 5x7 432.150, 0955 UTC VK3BDL 5x1 1296.150, 0901 UTC VK7MO/P 5X2 144.150 Working VK3KLO, 1006 UTC VK3TLW 144.150 5X5/7, 1007 UTC VK3TLW 5x2 1296.150, 1013 UTC VK3TLW 432.150 5X3, 1020 UTC VK3WRE 432.150 5X5, 1022 UTC VK3KLO 5X8 432.160 What a change a 432MHz freq. Busy 1026 UTC VK3KLO 1296.150 5x7/ 5x4, 1032 UTC VK3KLO 144.150 5X9, 1035 UTC VK3KWA 144.150 5x2 Calling VK7MO/P of the side of his beam." ... ROB VK3EK

Chas VK3BRZ reports ... "Last night 11/11/2000) between 09:00 and 10:00 UTC David VK3XLD and I worked VK7MO/P Mt. Wellington on both 2m and 70cm SSB. Signals were very good - at times Rex was up to S9 on 2m and S5 on 70cm, although at the time of my contacts we exchanged reports of 55/53 on 2m and 53/52 on 70cm.

There was clear evidence of aircraft enhancement, especially on 2m where Rex's underlying tropo signal was always audible at S1-2, but came up to S9 with multi-path flutter clearly audible during those times. The enhancement periods lasted about 10 minutes from go to whoa. The 70cm contact was grid No. 45 for me on that band." ... Chas VK3BRZ

Rex VK7MO reports on activity on 25/10/2000 ... "It was great to get through to Robbie VK3EK on both 2 and 70 cms SSB on 25/10/00, considering the poor weather - it was foggy and raining all the time. I did not make any other SSB contacts, but Chris VK3KME did copy my VFSKCW on 2 metres at up to 20 dB above the noise, and David VK3ANP did copy some short segments of VFSKCW at Wangarrata on 6 metres. David

VK3XDR at Geelong copied some PSK31 although I could not hear or see a peep from him."

"You may enjoy this story about what happened when I tried to come home. In trying to adjust the window to keep the rain out, with the feedline coming in the window, I must have somehow got the window winder motor stuck on. I must admit that while I was running the rig there was a slight transformer type smell but I could not find it and wrongly assumed it was imagination. Thus while I have a separate battery for the radio I still flattened the car battery - worse to come was that the radio battery did not have enough left in it to jump start the car. And there I was up the top of Mount Wellington at 10.30 PM in the rain and fog. The little I had in the radio battery did charge the car battery slightly and I did turn the engine over twice but not enough to start it. So I had to call my son out and jump start it from his car." Rex, VK7MO

Microwave Primer Part Six: 10 GHz

Mention 10 GHz and most amateur operators identify this as THE microwave band, the frontier where it all happens. 10 GHz "Primer" is to be presented in two parts, as this band holds most of the interest, yet is one of the more difficult bands to get going on. Despite this, most 10 GHz operators jumped straight from 1.2 GHz to 10 GHz missing all the bands in between. What has made 10 GHz the "icon" of the microwave bands?

Our 3 cm allocation stretches from 10,000 MHz to 10,450 MHz. Narrowband operation is concentrated around 10,368 MHz with the satellite allocation being around 10451 MHz (the long awaited Phase 3D satellite). The band was first activated over 50 years ago, our own Des Clift VK5ZO being the first to operate 10 GHz in the UK in the late forties.

Up until the seventies operation on 10 GHz was limited to Klystron technology, the WW2 surplus 2K25 (723A) Radar Klystron being the mainstay of operation. The Klystron provided about 100 mW's of RF and was typically used with a 1N23 mixing diode and a 30 MHz Wideband FM IF. The second station is tuned 30 MHz higher or lower, allowing full duplex operation.

In the seventies the Gunn diode that only required 5 volts to provide 5 - 40 mW's of 10 GHz RF soon displaced the old Klystron. It allowed the same "waveguide mixing" techniques as the Klystron with 30 MHz IF's, later 88 - 108 MHz FM receivers became popular as Wide band IF's giving some flexibility to tune around (30 MHz IF's were fixed requiring the Gunn diode to be tuned). As other "consumer" devices started to use Gunn diodes, e.g. movement detectors, the popularity of 10 GHz grew.

Gunn diode technology is still the easiest way to get going on any of the bands above 1 GHz if you have access to the parts. A commercial Gunnplexer needs little more than a few transistors, a FM receiver, microphone and dish to complete a 10 GHz station. They are also ideal RF sources for Wideband ATV and data links. More recently, DRO's (Dielectric Resonant Oscillators) have made an impact on wide band operations. DRO's offer much better temperature stability (they are typically used as the first LO of satellite down converters).

Wideband direct mixing technology has its limitations. Stability and noise sidebands of Gunn or Klystron RF sources are the prime limitations. Another is the actual noise figure of the receiver, at very best about 10 db. As the mixer has no filtering in front of it, the DSB noise sideband adds 3 db to the noise figure. A Wideband IF bandwidth has an approximate 15db disadvantage over a normal 2.5 KHz SSB IF. And 5 - 100 mW's of 10 GHz RF isn't much! It is obvious that stable "Narrowband" equipment would be an enormous improvement at any power level!

In the late seventies, several amateurs in Europe started experimenting with "Narrowband" 10 GHz operation. A demonstration by G3JVL of his waveguide based "transverter" to a group of German amateurs in 1977 to started the era of 10 GHz. Even though this still involved "plumbing", the explosion of interest on 10 GHz put Europe at the head of the Amateur microwave world. Yet it was still "mixing only" equipment. Affordable amplifying devices were not available.

By 1986 Gasfet technology had become affordable, as had PTFE based printed circuit board. And some clever work by some amateurs, making resonant cavity filters from common copper plumbing

end caps, provided the necessary filtering to make the first PCB based transverter possible.

The first PCB based transverter design was published by DC0DA, in VHF Communications in 1987, making all waveguide mixers obsolete. The 200mW's and 3-dB noise figure changed the game plan, seeing the tropo world record double in distance in short time. The 10 GHz transverter designs that have followed all reflect this design by DC0DA.

Next month, how do you get started on 10 GHz

New 24 GHz Record in USA

A new North American distance record at 24 GHz is being claimed by Ron Smith, K6GZA and Gary Lauterbach, AD6FP. The contact occurred September 16 during the 2000 10 GHz and Up Cumulative Contest between Mt Oso (CM97hm) in Northern California and Mt Frazier (DM04ms) in Southern California. The calculated distance of 375 km is believed to be a new North American record. Both stations used SSB with signals peaking to S7 on the Frazier end and S5 on the Oso end of the path.

At the time conditions on 10 GHz over the path were reported excellent. Signal levels were good enough for K6GZA and AD6FP to converse for several minutes before each went back to working other stations in the contest. (From ARRL Bulletin)

In Closing

Wally VK6KZ reports ... "Good news is that the 1296 MHz VK6RSW Augusta beacon is now 1296.562 MHz. 144 and 432 seem to be propagating in the Perth direction quite well but 1296 has yet to be heard." ... Wally VK6KZ

A short column this month as various work and private commitments has robbed much of the time required for producing the column (special thanks to Colwyn, AR editor for allowance here!). By the time you read this the Spring Field day should be well and truly over, I trust the weather helped with propagation!

I'll leave you with this thought. "The time to relax is when you don't have time for it"

Till next month

73's David VK5KK AR

Ises Observed And Predicted Solar Indices

Prepared by IPS Radio and Space Services

Predictions Based on Cycle 23 Peak Sunspot Number of 140

Issued on Oct 03 2000

SMOOTHED SUNSPOT NUMBER

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1995	24.2	23.0	22.1	20.6	19.2	18.2	17.0	15.4	13.4	12.1	11.3	10.8
1996	10.4	10.1	9.7	8.4	8.0	8.5	8.4	8.3	8.4	8.8	9.8	10.4
1997	10.5	11.0	13.5	16.5	18.3	20.3	22.6	25.0	28.3	31.8	35.0	39.0
1998	43.7	48.9	53.4	56.5	58.4	62.5	65.5	67.8	69.5	70.5	73.0	77.9
1999	82.5	84.6	83.8	85.4	90.4	93.0	94.4	97.5	102.3	107.7	110.9	111.0
2000	112.8	115.5	119.8	122.4e	123.5e	125.1e	130.4e	133.5e	134.8e	135.4e	136.5e	137.8e
				(1)	(2)	(4)	(5)	(7)	(9)	(10)	(12)	(14)
2001	136.8e	135.5e	136.5e	136.2	137.3	136.2	134.9	133.4	131.7	129.9	128.0	125.9
	(15)	(17)	(18)	(18)	(19)	(19)	(18)	(18)	(18)	(18)	(18)	(17)
2002	123.7	121.4	118.9	116.4	113.8	111.1	108.3	105.5	102.6	99.6	96.7	93.7
	(17)	(17)	(16)	(16)	(16)	(15)	(15)	(15)	(14)	(14)	(13)	(13)
2003	90.6	87.6	84.6	81.6	78.6	75.8	72.6	69.7	66.8	63.9	61.1	58.4
	(12)	(12)	(12)	(11)	(11)	(10)	(10)	(9)	(9)	(9)	(8)	(8)
2004	55.7	53.1	50.5	48.0	45.6	43.2	40.9	38.7	36.5	34.5	32.6	30.7
	(7)	(7)	(7)	(6)	(6)	(6)	(5)	(5)	(5)	(4)	(4)	(4)
2005	28.9	27.1	25.4	23.8	22.3	20.9	19.5	18.2	17.0	15.8	14.7	13.6
	(4)	(3)	(3)	(3)	(3)	(2)	(2)	(2)	(2)	(2)	(2)	(1)
2006	12.6	11.7	10.8	10.0	9.3	8.5	7.9	7.2	6.7	6.1	5.6	5.1
	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)				
2007	5.4	5.5	5.0	5.4	7.1	8.2	9.5	11.2	13.3	15.6	18.3	21.3
					(1)	(1)	(1)	(1)	(1)	(2)	(2)	(3)
2008	29.0	33.2	37.5	42.1	46.8	51.6	56.4	61.3	66.1	71.0	75.8	
	(3)	(4)	(4)	(5)	(5)	(6)	(7)	(8)	(8)	(9)	(10)	(10)
2009	85.2	89.8	94.2	98.5	102.6	106.5	110.3	113.8	117.2	120.3	123.2	
	(11)	(12)	(12)	(13)	(14)	(14)	(15)	(15)	(16)	(16)	(17)	(17)

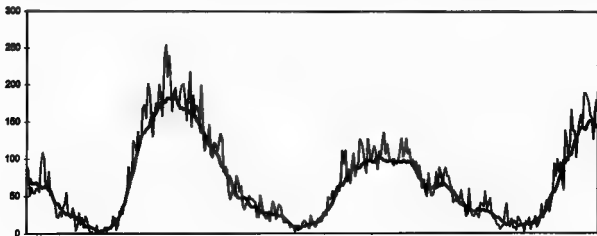
Solar Cycle 23 maximum

The Ionospheric Prediction Service is predicting a peak for solar cycle 23. The smoothed sunspot number is expected to peak at 140 in December 2000. The table on the top left is the Ionospheric Prediction Service table for smoothed sunspot numbers for solar cycles 23 and 24; it is printed with permission.

The graph of the current solar cycle [23] shows that that is now at or near its maximum. As the smoothed sunspot number is a running average, taking in figures six months ahead and six months in the past, we can only be sure of the maximum at least 6 months after it has happened. Past figures predicted this to be about now.

More recent figures were setting the maximum in the range August 2000 through to February 2001. The graph of observations also shows the monthly average of observed T index to be falling. The Ionospheric Prediction Service has revised its table of T indices with the new table showing a peak in August 2000.

This does not mean that conditions for radio are on a downward slide. My experience is that the best conditions are in the year following a solar cycle peak. 2001 is shaping up to be the best year for radio propagation in solar cycle 23.

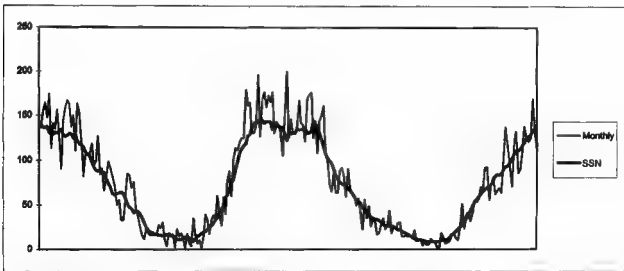
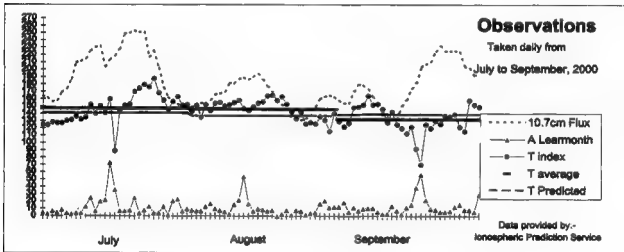
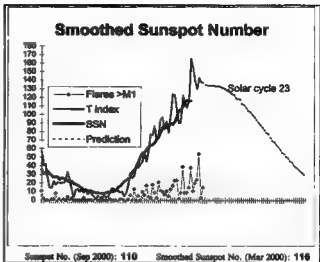


Climatology

At the bottom of these pages is a graph of the last fifty years of monthly sunspot numbers and the underlying smoothed sunspot number

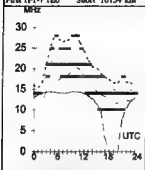
The rise and fall with each sunspot cycle shows the pattern expected but that's where it stops. You can see the variation in the peak values. The length of each solar cycle can also vary, and has done so in the past, but has been close to the standard eleven years for the last half century. It is included to show the variation in the solar cycles and the consequent difficulty in quantifying variation based on past climate. It is designed to cover the operational time of most amateurs. It may equate to the rise and fall of DX or entries in some station logs.

The graph runs from July 1950 where you can see the final decline of cycle 18 to September 2000 which is approaching the peak of cycle 23. The break between pages occurs at June/July 1980 which is near the peak of solar cycle 21.

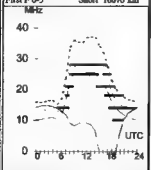


Adelaide-Capetown 226

First 1F1-7.1E0 Short 10154 km

**Brisbane-Dublin 335**

First F 0-5 Short 16670 km

**November 2000**

T index 134

**HF Predictions**

by Evan Jarman VK3ANI

34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits

These frequencies are identified in the legend are:

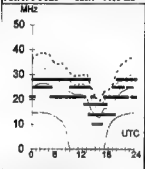
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit

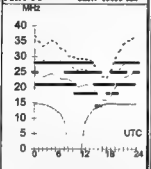
These predictions were made with the Ionospheric Prediction Service program: IASAPS Version 4

Adelaide-Honolulu 57

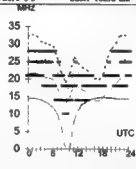
First 3F2-8.3E0 Short 9160 km

**Brisbane-Lima 122**

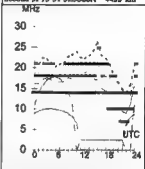
First F 0-5 Short 13055 km

**Canberra-Barbados 123**

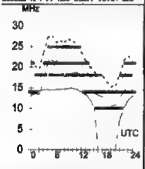
First F 0-5 Short 16232 km

**Darwin-Bangkok 310**

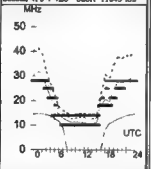
Second 3F1-5.31E0 Short 4435 km

**Adelaide-Lusaka 344**

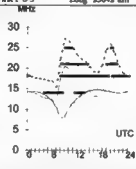
Second 4F2-11.4E0 Short 10787 km

**Brisbane-Seattle 44**

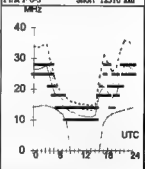
Second 4F3-7.4E0 Short 11845 km

**Canberra-London 136**

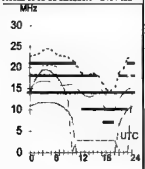
First F 0-5 Long 23042 km

**Darwin-San Francisco 34**

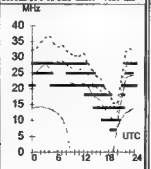
First F 0-3 Short 12316 km

**Adelaide-Singapore 311**

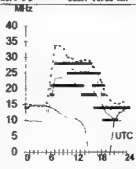
Second 3F1-2.21E0 Short 2414 km

**Brisbane-Tokyo 348**

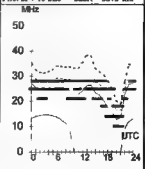
Second 3F6-13.3E0 Short 7159 km

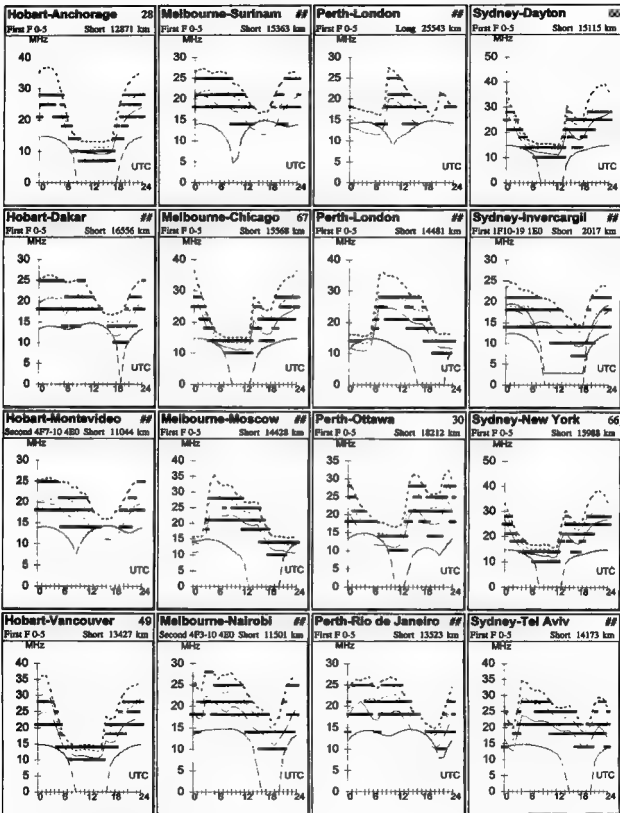
**Canberra-London 316**

First F 0-5 Short 16982 km

**Darwin-Seoul 356**

First 2F4-10.2E0 Short 5375 km





HAMADS

- Hamads may be submitted on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
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- QTHR means the address is correct in the current WIA Call Book.
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- **Kenwood R-1000** Communications receiver plus instruction book. Recommended five star rating. Genuine snap. QTHR Newcastle 02 4954 0893
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- **BOOK:** "Radiotelegraph and Radiotelephone Codes, Prowords and Abbreviations." 2nd Edition. \$15 posted Australia. 90 Pages. Q,X,Z Codes, 87 Phonetic, 20 Morse Codes. Phillips, Myer, 10,11,12,13 Codes. Much other info. Internet - <http://www.nor.com.au/community/sarc/phonetic.htm> VK2JWA, John W. Alcorn. QTHR 02-66215217. Email jalcorn@nor.com.au
- **INTERNET** Connect from Port Macquarie to the Gold Coast from 80c per hour. Summerland Amateur Radio Club. For info - <http://www.nor.com.au/community/sarc/sarc.htm> John, VK2JWA, QTHR, jalcorn@nor.com.au, 33 Spring St, Lismore, NSW, 2480. Ph 02 66215217
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WANTED - NSW

- **Circuit and service manual** for UPS of Australia model MC 1003; Palec valve and circuit tester model vct-c; User manual for Amstrad LQ3500LI printer VK3ZA QTHR
- **YC-7B** outboard digital frequency display unit for FT7B transceiver. N. Chivers, VK2YO. QTHR 02 6674 2095

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- **Tower 35ft** galvanised wind up tilt-over, TET 3 element HB33M tri-band antenna, h/duty rotator, all good condition, \$200 the lot. Moving house Bob VK3CF 03 9361 3542
- **Step down transformer** rated 500 v/a 110v out at 4.5A input 210/240 50Hz, weighs 25lb, 11.5kg, made by Bland Radio Adelaide. Best offer gets it. Cannot deliver Allan Doble VK3AMD QTHR phone 03 9570 4610 anytime.
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- **Icom IC-751a** Transceiver, IC-PS15 power supply, IC-SP3 extension speaker. Fully optioned base mic, YO-100 monitor scope, YE601 and a HM-14 hand mic. Plus a rare RC-10 remote controller to match. Excellent condition. Paul VK3DA 03 5983 1771 or apaulo@vk3da.alphalink.com.au.

WANTED - VIC

- **Circuit and manual** for 1967 Stoddard field intensity receiver type NM22A. Circuit and manual for VHF heterodyne frequency meter TS323UR/URM32, and for a B41 receiver. Circuit for KYORITSU V.T.V.M K142. Brian VK3WYN QTHR 03 5664 1251

- **Original technical manual** USA TM-11 300 for SCR211 (BC221) frequency meter. Grateful if anyone can help. VK3HX QTHR 03 9807 9172
- **UNIDEN 2020** HF transceiver in any condition, needed for spares only. Lindsay VK3IQ, QTHR Ph [03] 5672 2563, vk3iq@telstra.easymail.com.au

FOR SALE - QLD

- **Kenwood TS20S** HF transceiver with dynamic microphone, excellent condition, one owner, purchased new, includes spare pair new 6145B power amplifier tubes, 100w output \$395. Kenwood MC43S scanning microphone new \$50. Kenwood PS-52 power supply, new in box. \$425 John Abbott VK4SKY 0417 410503 benoe@fran.net.au QTHR
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WANTED - QLD

- **Case** for AT5 transmitter or junked set with intact case. Control box for Emotator 10SS or similar model. Wayne Melrose VK4WDM (07) 47888 781. Email Wayne.Melrose@jcu.edu.au
- **Wanted Urgently:** Grid Dip Oscillator prefer bipolar transistorised (or FET) with multi-coil coverage from 5 MHz to 250 MHz. Calibration accuracy is of no consequence; however, sensitivity is! Noel VK4CED 07 40699878 email: thecape@bigpond.com

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- **Icom IC730**, Yaesu FP 707, Kenwood AT130, Kenwood TH250A 2m b/h, 10 metre freestanding tower, Ailinc EMR 400 rotator, Chirsnde CE 42 duo-band beam, A248D 3 band trapped dipole, Chirsnde CE5SS 5 band vertical, 15 metre steel pole. All manuals, filters, switches, cables, etc. Moving house, must sell together as a complete station. Suit new licences \$1350 Ted VK5KEW QTHR 08 8552 3885
- **World globe "map"** flat, 320 UHF rig, "vertical ant" 60 ohm "balun", four way co-ax switch. Two way two four ohm speaker, 15 watts WNNMR stereo amp. Two ac/dc adaptor, ten metre vertical ant. Dynamic P/A mic. Good condition. Will accept highest offer for everything VK5AUS QTHR 08 8344 5011

FOR SALE - WA

- **Beams (two).** Three element tri-band, Moseley and Chirsnde \$100 ea Plus heavy gauge tapered steel light pole with access door, 6.5 metres long, has a piece of straight tube to mount rotator at top \$50 Call John 08 9293 2998 VK6RI QTHR

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• **Working CW crystal filter** to suit Kenwood TS-520 (TRIO YG-3395C). Phone Justin VK7ZTW (03) 6223 1351 (AH) or email: justingco@ozemail.com.au

MISCELLANEOUS

• If you got your licence before 1975, you are invited to join the Radio Amateurs Old Timers Club. A \$2.50 joining fee plus \$8.00 for one year or \$15.00 for two years gets you two interesting Journals a year plus good fellowship. Arthur Evans VK3VQ or Allan Bode VK3AMD can supply application forms. Both are QTHR in any Call Book

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3766, tel. (03) 9728 6350

TRADE ADS

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For all RF applications. Send business size SASE for data/prices to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Bosnyo Ave Kiama). www.cyberelectric.net.au/~rjandusimports

Agencies at: Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne and Mildura; Alpha Tango Products, Perth; Haven Electronics, Nowra

• **WEATHER FAX** programs for IBM XT/ATs *** "RADFAX" \$35.00, is a high resolution short-wave weather fax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" \$45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" \$75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add \$3.00 postage. ONLY from M. Delahunty, 42 Villiers St, New Farm QLD 4005. Ph 07 358 2785.

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Silent Key

9A4SP/4W6SP Pero Simundza

The recent deaths of three UN aid workers in West Timor shocked the world. Australian amateur radio operators are perhaps unaware that one of those killed was a radio ham, one Pero Simundza, 9A4SP/4W6SP.

I had the privilege to work Pero while he was in Albania signing ZA/9A4SP and have also heard him in on the air from Timor.

The duties of UNHCR members often expose them to danger when they are operating in hostile territories, but their dedication and skills are prerequisites in conducting their humanitarian mission. Their jobs are often risky, but unfortunately necessary, to humanely relieve the suffering of those who become refugees or displaced during times of violence and unrest.

Unfortunately, Pero met his untimely death at the hands of lawless militia while performing his duties as a radio operator in Atambua, West Timor. His dedication and bravery merits recognition from all radio operators, both professional and amateur.

Our sincerest condolences are extended to his family and friends.

The following letter is from Peter, ON6TT, on the recent death of Pero, 9A4SP/4W6SP in Atambua in West Timor.

"Friends,

"It is with profound sadness and anger I heard today that Pero Simundza - 9A4SP/3W4SP - a UN colleague and fellow ham, was amongst the three UN staff who were killed during a militia assault on the UNHCR office in Atambua, West-Timor yesterday.

"The UNHCR office in Atambua was attacked by a vicious militia mob who overrun and trashed the premises and vehicles, stabbed three UNHCR relief workers who were working in the office at that moment to death. They then dragged the bodies onto the street and put them on fire. Pero was one of them.

"Pero worked for UNHCR in Atambua as an international radio operator. He joined UNHCR years ago, in Sarajevo. Later on, he moved on mission to Albania, where I met him in June last year. He was then on the air as ZA/9A4SP. We spent a most enjoyable evening together, ending with me operating from his station. He struck me as a young, very enthusiastic and true DX passionate ham, and a great person.

"Since then, we kept regular contacts, sending each other news from where we were, and where we operated from.

"After returning from Albania, to work in Sarajevo for a few months, he was appointed to Atambua, West Timor. He was real happy with his international assignment, close to the East Timor border. He regularly crossed the border to be active from the other side as 3W4SP, in a small house where he had arranged his shack. He sent me pictures by Email of his shack and antenna.

"I looked forward to meet him during my current Asia tour, which included West and East Timor. Unfortunately, I had to reschedule my visit to Kupang and Atambua by a few days at the last moment, so Pero and I missed each other by 2 days. He was on R&R when I had meetings in his office in Atambua two weeks ago and I walked passed the radioroom he worked in. Last week we exchanged Emails again saying 'there will always be a next time, people like us always meet again, one side of the earth or another'.

"Unfortunately, Pero, I will not be able to keep my promise. You parted us way too soon, in a senseless death. We all know the risks we face while working in emergency relief activities, but your departure due to inhumane and totally absurd violence shocked many of us.

"Farewell, my friend, we will all miss you. Our thoughts go to your family remaining behind.

"vy 73 Peter, ON6TT"

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Note: 1. Views expressed in letters are those of the authors and do not necessarily represent the policy of the WIA
2. Some of the letters have been shored to allow more letters to be published.
3. Address letters to: The Editor, Amateur Radio, 34 Hawker Crescent, Elizabeth East SA 5112

The Things That People Do

Hi Fellow DXers,

I would like to air my anger and surprise regarding DX cheating

I would also like to hear from others, about their experiences to gauge how widespread DX cheating is. Before I begin I must impress that *this has nothing to do with the operators of A52A*. In my opinion they did an amazing job, with bad conditions & only 100 odd Watts. I applaud them and hold them in the highest regard. My experience is as follows.

In the recent A52A Dxpediton, I was experiencing difficulties hearing the A52A Station let alone breaking the pileups. I was listening for up to seven hours a day in the usual timeslot that propagation was expected between VK and A5. I heard nothing of them, I was constantly connected to my local DXpacket cluster. It is a linked system with great coverage. I knew exactly where the A5 was by the constant spotting. I was posting announcements on the Cluster often. Announcements like: PSE someone in Europe ask A52A to listen for Pacific or Have any VKs worked A52A, if so Time? Band? Not heard in VK4 yet. I was getting desperate as I could hear 9N (Nepal) & VU (India) just fine, but no A5. I was getting answers to my packet pleas, like. A52A now listening for VK/ZL etc etc. but I had no copy with my tribander yagi. I could hear VK3s working them but not a whisper in VK4. Finally on the 12th of May 2000 (the last day of the A52A operation) I heard a weak signal on 15 meters SSB, Long Path. I called & worked them. I was elated as it was at 0134Z. I later saw posted they went QRT at 0202Z. So I made the cut by a mere 28 minutes. My patience was rewarded. I also later found out that the location of the A52A dxpediton did not favour Oceania as there was a mountain range between us. Hence the poor showing of Oceania in the log, (2% or so). As I do not have an Internet connection, only a

cheap Email server. I asked a friend to look up my Call in the A52A log on the Internet. I was confident I had a good QSO on 15m SSB but just had to know if I was "in the log". My findings were shocking and angered me. I was in the log 10 times, for bands I don't even operate on, and also for CW QSOs. I do not use CW. I show 3 QSOs on 15 metres alone! (I never knowingly Dupe DX unless I think they might have BUSTED my Call.) My question is this? Who makes these Illegal QSOs, using my Callsign? Is it some guy who feels sorry for me not able to make the QSO? Is it someone who hears me calling & then later works them with my call? How widespread is this practice? I am not ignorant of the fact that cheating goes on, I am the QSL manager for a DX station and have been sent blank QSLs with only the date and signature on them, for rare IOTAs. I have been asked in the post "Can I get a Mellish Reef QSL from anyone" etc. The station I manage has often mentioned about working the same voice or key with several Callsigns. To me this is a pointless practice, its like cheating at solitaire, I know every station in MY log has been worked by ME VK4EJ. If and when I reach "Honour Roll" status it will be on my own merits. I had hoped that every DXer could say the same, But now I question it, and it troubles me. I thank you for reading this; it has, if nothing else got it off my chest and maybe, just maybe, might jog someone's conscience and help stamp out this Non Ham Spirit.

Best 73, de Bernie McIvor VK4EJ

Focus on young hams

Dan Bartlett, VK4TDB, wishes to compile a list of current Amateur Radio Operators in Australia, who are under the age of 25 (that is, born in or after 1975). He wishes to start up a club, with a bi-monthly newsletter focusing on youth ham radio issues, and how to get more young people into the hobby. So, if you fit into that category, send an email to vk4tdb@radio.fm, or snail mail to PO Box 8129, Allentown, QLD, 4700

WIA QSL bureau: Will it survive?

Firstly, I should perhaps explain that I have been, and still am, a member of the VK2 division, in excess of 10 years. Plus a prior member of the VK5 division.

Many members who participate and enjoy QSLing would agree that a decline in the exchange of cards in recent times is most apparent.

I am not spearheading the VK2 division - heaven forbid! The problem is worldwide.

Many amateurs I have spoken to recently, one in Spain, have given away the bureau, and will only reciprocate when they are in receipt of the other party's card, and then only by direct mail.

In view of the Institutes battle to increase membership numbers, this problem would be better eliminated.

I dispatch more cards these days than ever before, but the response is down to a trickle.

I would be grateful to read members' comments, particularly those experiencing this problem.

John G Lyons VK2NDR

Intrusion in 70cm allocation

Just as matter of interest, regarding the intrusion of low powered devices into our 70cm allocation I recently purchased a 2 Channel UHF Remote Control Kit from OATLEY ELECTRONICS. The on board receiver module is for 318MHz but has provision for a 433.9MHz receiver. The instructions state that this is to be ignored as this is for a future project currently being developed.

So I guess it is only a matter of time before we start seeing or should I say start hearing other signals on the band.

Best 73's Ian G VK3AQU

Silent Key

The WIA regrets to announce the recent passing of:-

M (Malcolm) CREW VK3BBU

▶ YAESU'S DONE IT AGAIN



FT-920 HF/6m Transceiver with DSP

Now there's no excuse for not taking advantage of the advances in Digital Signal Processing, transceiver design plus the fun of 6m operation. The stunning Yaesu FT-920 is a high performance HF/6m multi-mode base station transceiver that provides 100W PEP output on the 160-6m bands, incredible front-end performance based on the FT-1000MP design, and a huge array of features that make it a pleasure to use.

At first glance Yaesu's renowned Omni-Glow LCD screen is obvious, and its wide-angle view provides a wealth of information about the transceiver's operating status with multi-function metering, dual frequency displays and an Enhanced Tuning scale for DSP bandwidth, CW tuning, FM discriminator and more. Inside, the FT-920 is built around a rugged diecast unibody chassis which provides excellent heatsinking for the low distortion dual MRF255 160-6m FET power amplifier.

For more comfortable operating when weaker signals are present Yaesu's engineers dedicated themselves to enhancement of real-world signal to noise ratios, and after thousands of hours of design and testing have produced an industry-leading 33.3MIPS (millions of instructions per second) processing speed DSP in the FT-920 that provides a two-parameter noise reduction system with 32 steps of front panel adjustment. This amazing system also provides dual control DSP passband tuning, DSP auto-notch filter, an amazing new transmit Digital Speech Processor, DSP mic equalisation, fast acting DSP VOX circuitry as well as a Contest-ready Digital Voice Recorder!

Other features include an all-band (160-6m) auto antenna tuner which also provides greater receiver band-pass protection, Direct Digital Synthesis for clean local oscillators, selectable frequency-optimised receiver front-end pre-amps, and a Shuttle Jog tuning ring for fast QSY.

A Dual Watch receive system allows you to check for band openings, especially handy when monitoring 6m. Also provided are SSB/CW operation (AM and FM optional), 127 memories with alphanumeric labelling, IF Shift and IF noise blanker to fight interference, plus an extensive menu system for selecting most "set and forget" functions. The FT-920 is supplied with an MH-31B8 hand mic, DC power lead and comprehensive instruction manual.
D 3420

**Why not call for a copy of
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YAESU

\$2750

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NEW



IC-756PRO The HF & 6mm multimode

professional performer. 100 watts of power, newly designed 32 bit floating DSP for noise reduction and auto notch function, and AGC loop operation for wider dynamic range. Plus digital IF filter, built-in RTTY Demodulator/Dual Peak APF, and a whole lot more.

IC-2800H A totally new approach to dual band mobile. Powerful performance on 2m and 70cm bands, remote control capability, and a first for mobile rigs... a multi-function colour LCD screen! All your information is right in front of you in colourful 3D-like characters and icons.



IC-T81A A remarkably compact quad bander.

Superb clarity on the 6m, 2m, 70cms and 23cm bands. It's water resistant, with tone squelch and pocket beep functions standard, plus you can change volume and bands even quicker with the 'joy-stick' style multi-function switch.



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